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I.

MYXOMA OF LARYNX.*

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PHILADELPHIA.

PROF. OF LARYNGOLOGY, PHILADELPHIA POLYCLINIC, ETC.

Mackenzie, in 1871, in his classical work on laryngeal growths, speaks of the great rarity of myxomatous growths in the larynx, having seen but one case and this not purely of a myxomatous nature.

He refers to the case of von Bruns as of very great interest and as possibly the only authentic case on record.

It is interesting in this connection to note that one of the first important intra-laryngeal operations after the discovery of the laryngoscope was the removal of a laryngeal polyp—von Bruns in 1861 removed from his own brother a laryngeal polyp completely restoring his voice.

Mackenzie is by no means alone in regarding this neoplasm as of great rarity in the laryngeal cavity. Lefferts says one might easily go a life time without meeting a case of true myxoma of the larynx.

Little mention is made of this condition in any of the numerous text books on laryngology—some authors ignoring it entirely.

*Read at the meeting of Section on Otology and Laryngology of the College of Physicians of Philadelphia, Nov. 21, 1900.

After a somewhat diligent search I have been able to collect about 35 cases which, from the description, the reliability of the author or microscopic examination, are believed to have been true myxomata of the larynx. Many of the cases reported in the early days of laryngoscopy as polypus of the larynx in which no microscopic examination was made were doubtless cases of the more common non-malignant neoplasm—namely, papilloma and have not been included in this list. Such for instance was the case of Dr. Thos. J. Walker reported in the *Lancet*, 1861. He speaks of it as a polypoid growth in the larynx which he removed by the aid of the laryngoscope and silver wire afterward cauterizing the base with silver nitrate.

Of these 35 cases, 28 were observed by Continental and 7 by English and American writers. In 3 cases there was spontaneous detachment of the laryngeal polyp by coughing. The case of Graham Steel (*Brit. Med. Journ.*, 1888) is most interesting. A patient known to have a laryngeal growth, brought up during a coughing spell a body which she placed in a bottle and carried to the clinic. Microscopic examination proved it to be true myxoma. Fränkel's case reported at the Berlin Medical Society is somewhat similar. The microscope here revealed fibroid polypus.

The size of the growths seem to vary from that of a small pea to a mass large enough to obstruct the entire lumen of the larynx.

In one case the laryngeal growth was the immediate cause of a fatal termination. This case was reported by Dr. Heines (*Cleveland Med. Gaz.*, '85-'86). A child in which a laryngo-tracheotomy had been done for laryngeal diphtheria died suddenly on the 52nd day after the operation and after the wound had healed. At the post-mortem, at the crico-thyroid space there was a polyp-like structure about the size of a small soup bean attached by a slender fibrous pedicle. This structure was developed at the close of the process of healing of the wound. When the glottis was relaxed in expiration it presented an obstruction. As there was no mention of microscopic examination of this "polyp like structure" there is of course ground for doubt as to its true nature.

In most of the reported cases, my own case included, the growths were multiple.

In one case thyrotomy was performed to remove papillomata of the larynx in a girl of 12 years of age. The microscope showed it to be a true myxoma—(Dr. F. C. Raynor, Jour. Am. Med. Ass'n, '92).

The history of the only case of myxoma or polyp of the larynx which has come to my notice is as follows:

J. A., aet. 55, an active healthy man of German birth, came to the polyclinic June 7, 1900, for the relief of hoarseness. He stated that he was perfectly well in every respect save that several months ago he began to suffer from hoarseness. At first this was so slight that he regarded it as merely a cold. As it failed to improve after the use of various simple remedies and gave him some annoyance he became convinced there was something more than ordinary the matter and hence came to the clinic.

The examination showed an unusually large larynx—the mucous membrane of which was somewhat congested. The vocal cords were nearly normal and approximated perfectly. From this casual examination no adequate cause for the persistent hoarseness could be discovered. With the view of a more thorough examination and to control an overhanging epiglottis the laryngeal surfaces were painted with a 10 per cent. cocain solution. It was only after complete cocainization and during forced phonatory efforts that the cause of the hoarseness became apparent. Immediately below the cords or perhaps attached to the under surface of the left cord, in the anterior portions, were several masses of a clear homogeneous structure. These masses were attached by a pedicle and hung loosely into the larynx. During phonation they were forced up between and over the vocal cords and of course prevented proper approximation.

This neoplasm in its appearance did not suggest the ordinary forms of laryngeal growth. Its clear mucoid-like structure resembled closely those with which we are familiar as occurring in the nasal cavities.

In consequence of the intractability of the patient some time was consumed in training the larynx to the use of instruments so that it was not until July 3rd that an effort was made to remove the growth. A large piece was removed on this date; on the 5th a smaller piece and again

on the 12th a still smaller piece. The largest piece was at once sent to the Polyclinic laboratories for microscopic examination.

These three operations seemed to clear the laryngeal cavity completely and his voice improved decidedly although it did not become perfectly clear.

The patient, however, seemed to be satisfied with the result and I saw no more of him until about the first of November when he reappeared. His voice at this time was quite husky and he stated he felt something in the larynx.

Careful inspection revealed the presence of a mass of the same structure as that previously removed. This was taken away with comparative ease and on the 20th of Nov., 1900, the larynx was entirely free from morbid growth, and the voice quite clear—indeed much more so than at any time since he first presented himself for treatment.

The following is an extract of notes from the Polyclinic laboratories:

“The growths were smooth, round masses varying in diameter between the limits of 5 and 7 mm. Sections show a partial division into lobules by a dipping inward of the surface epithelium. Microscopically they are composed of a mass of loose fibrous tissue, covered over by a stratified pavement epithelium eight to ten cells in thickness.

In the central part of the growths the fibrous tissue is fairly dense, and contains numerous cells, the surface portions show, however, a markedly edematous condition, the fibrillae being widely separated, and showing occasional stellate cells, with long, fine protoplasmic processes.

The growths are quite vascular. There is no irregular proliferation of epithelium and no indication in the specimen sent of malignancy.”

“Diagnosis: Edematous fibroma or polyp.”

Myxoma of the larynx presents no subjective symptoms different from other laryngeal growths and is therefore only a pathologic curiosity.

Hoarseness or even complete aphonia is purely mechanical and varies in proportion to the size of the growth and the amount of interference to the muscular control of the larynx.

Dyspnea for precisely the same reasons may or may not be present. It was not a symptom in the case herein reported for the reason that a comparatively small growth hung into a capacious larynx and in no wise interfered with the current of air either in inspiration or expiration.

One peculiar feature in the case reported this evening and from which an important lesson may be learned is that it was only visible by the laryngoscope during forced attempts at phonation.

The lesson to be drawn from this is that we should be cautious in expressing an opinion as to the presence or absence of a growth in the larynx, of which hoarseness is a symptom, after a hurried examination. Indeed it seems to me safer in laryngeal cases to withhold a positive diagnosis until a number of examinations have been made and on different days and after exhausting all the resources at our command to obtain a quiet larynx.

While there are no symptoms peculiar to the form of laryngeal growth under discussion—there is something in the appearance of the growth itself even when seen in the laryngoscopic mirror that is absolutely characteristic. It at once suggests polypus. The same translucent homogeneous mass so commonly seen in the nasal chamber is reproduced here in the larynx.

II.

A CASE OF PRIMARY TUBERCULOSIS OF THE NASAL SEPTUM.*

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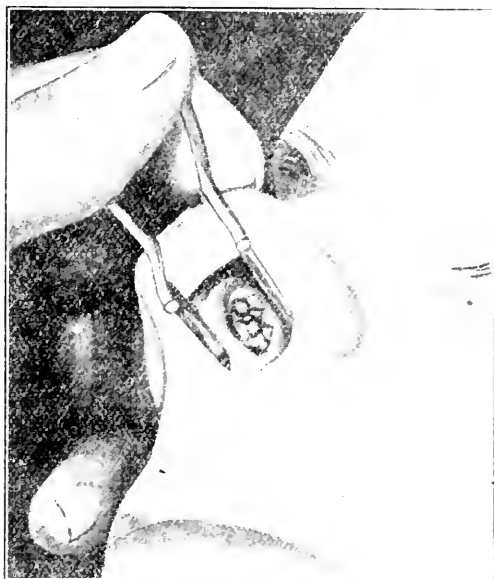
Mrs. H., 45 years old came under my observation five years ago and has been seen by me at frequent intervals during this time. Previous to this she was in the care of the late Dr. Max Thorner of Cincinnati, for a period of about four years, making a total period of observation of about nine years. Her general health is exceptionally good, and she is the mother of four robust children. The family history is good, a brother however is probably affected with a similar ulcer upon his septum. I have never seen him and only have the statement of Mrs. H. on this point.

In the case of Mrs H. the ulcer presents a slightly elevated border of bluish white color, while the bottom is covered with a yellowish thick secretion. When this is wiped away the surface is seen to be made up of small roundish nodules and granular areas. They are only moderately red, are very friable under the probe and bleed easily but not freely. The outline of the ulcer changes its form rapidly, sometimes covering an area as large as the thumb nail and at others it is diminished to a very small space; indeed during the warm months of the summer the crater of the ulcer becomes entirely covered over with a smooth tissue like the edge of the ulcer described above. In other words it only persists during the cold months of winter and early spring, voluntarily healing over with the approach of warm weather. When there is active ulcera-

*Read before the Middle Section of the American Laryngological and Otological Association, Dec. 29th, 1900.

tion the patient complains of a slight stinging sensation and at times of slight aching also.

Three years ago the writer had the scrapings of the lesion examined microscopically by the Columbus Medical Laboratory but only simple granulated tissue was found. The tissue was then stained and examined for tubercle bacilli with negative result. A guinea pig was then inoculated with some of the tissue in the inguinal region. After three weeks the pig was noticeably somewhat ema-



Author's Case of Primary Tuberculosis of the Septum.

ciated, the glands in the region of inoculation being enlarged. At the end of six weeks a post mortem examination was held and tubercle bacilli found in great abundance in the pus and debris at the point of inoculation. The glands and other tissues affected were prepared and examined microscopically and showed the characteristic changes of tubercular infiltration. This work was done under the supervision of Dr. W. A. Evans of the Columbus Medical Laboratory.

In order to make the history of the case more complete I took the patient to Dr. Robert Babcock who examined

her chest and reported an apparently healthy pair of lungs.

This case is unusually interesting not alone on account of its rarity but (a) because it has been under observation so many years without extension to other parts; (b) because a brother probably has a similar lesion; (c) because it only persists during the cold months of winter and early spring; and because of the inoculation experiment having been made in support of the diagnosis.

A brief preliminary report is herewith appended of a second case of primary tuberculosis of the septum: the facts were given me through the courtesy of Dr. G. Frank Lydston. The case applied to him on account of enlarged cervical glands which he removed and submitted to the Columbus Medical Laboratory for examination. They were found to be tubercular. For a long time previous to the granular enlargement the patient gave a history of the local ulceration of the nasal septum. The description of the ulcer is practically the same as that given in my own case. Dr. Lydston made a careful examination of the lungs of his case with a negative result. As yet no microscopic examination or inoculation experiment has been made with the tissue from the ulcer. The writer hopes within a short time to have the opportunity of making such experiments and adding them to the literature of the subject.

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III.

THE TREATMENT OF LARYNGEAL TUBERCULOSIS AT THE MONTEFIORE HOME FOR CHRONIC INVALIDS (N. Y.).

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One of the most difficult chapters in the treatment of the upper air passages is the management and treatment of laryngeal tuberculosis. In fact to the hospital physician this has been one of the most disagreeable tasks possible. To see these most miserable of all sufferers live for months or even for years, with constantly increasing pain, for whom even the swallowing of their own saliva is a dreaded effort has been an every day occurrence; and we as physicians, have been, as a rule, practically helpless in combatting this disease. Morphin, internally and locally, quickly reached its effectiveness in most cases; and for many patients the cocain spray is extremely disagreeable.

For the last ten years I have had to attend to these patients at Montefiore Home, where we have sometimes as many as twenty or thirty suffering from laryngeal tuberculosis in every stage possible. That under the above condition of our comparative helplessness it was not pleasant to treat these patients and see them suffer pain constantly, with occasional relief lasting half an hour or little longer, everybody will admit. Luckily things have changed in the last few years, and I confess that nowadays it is a pleasure to treat such patients. They look happier, they feel better, can swallow much better, and last but not least they are anxious to receive the treatment, while formerly they tried not infrequently to avoid it. All these facts have also been noticed by other physicians who have seen the patients at the above institution.

However, before I describe the methods applied nowadays I will say that there is a stage preceeding the forma-

tion of tubercles and ulcerations in the larynx. Such conditions we can see quite often in an institution like the above one, where there are besides the many consumptives just as many afflicted with some form of nervous or other troubles. These conditions in the larynx, which I might sum up under the name of "PRETUBERCULOUS LARYNGITIS", have to be treated with as much care as the outspoken tuberculous affection of the larynx. Of course, this is done with greater ease in a closed hospital with mixed patients (i. e. tuberculous and non-tuberculous) where everybody showing any of these symptoms is considered suspicious and accordingly treated. But with people who already have signs of tuberculosis of the lungs, and manifest some catarrhal symptoms in the larynx, this can and ought always to be done in private dispensary practice as well. If in this stage a patient is treated conscientiously I am convinced that in many cases an outbreak of tuberculosis of the larynx can be avoided.

The symptoms at this stage where no tubercles are deposited are

Anemia,

Hyperemia,

Swelling,

In making these divisions I agree perfectly with Otto Ringk when he says (*Monatsschrift für Ohrenheilkunde* p. 180, 1889) "The treatment of this first stage is to be considered according to whether we have to deal with anemic or with hyperemic mucous membranes. The strictest differentiation between the medicaments after this point has been decided assures the possibility of success. The former naturally will need more irritant drugs than the latter.

In the anemic stage I have found the following to be of service; insufflations of zinc soziodol with sugar of milk, applications of nitrate of silver in 3 per cent. solutions, liquor ferri sesqui chlorid (1.0:30.0) and Peruvian balsam with spiritus vini rectific. I have not risked applying any strong astringents or caustics for fear that we might get not only a hyperemia, but as it occurred in a case of Ringk's—an edema of the entire mucous membrane of the larynx. I need not remark that such an incident is the

last to be desired, and that we must be on our guard in making applications.

In the hyperemic stage I have used, with here and there remarkably good results, the following solution: Creosote 0.5, spirits vini 10.0, glycerin 50.0 (The creosote can be used even stronger, vide Schech). Applications of tannin, alum and other astringents have been used with benefit also. That different inhalations ought to be used besides this treatment, and that especially at this stage any catarrhal condition of the nose or throat ought to be looked after very carefully, I will only mention *en passant*.

After a ten years' experience at Montefiore Home I am convinced that there exists such a pretuberculous laryngitis and that it can be treated successfully in a number of cases, thus preventing the real outbreak of tuberculosis in the larynx. Once an erosion or an ulceration is to be seen in the larynx, we treat the case as tuberculous. This leads us to tuberculous laryngitis itself, and we see here, as is generally conceded, four different forms: viz: 1. the tuberculous infiltration; 2. the tuberculous ulceration; 3. tuberculous tumor; 4. miliary tuberculosis of the larynx. I do not wish to go into details as to the pathological anatomy of these conditions. Allow me to remark only that I have repeatedly seen, and here I agree with B. Fraenkel—miliary tubercles in the larynx. Virchow even recommends the larynx to all those who want to study the true tubercle. These tubercles, however, are located very superficially and break down at a very early stage, leaving a small shallow ulcer. This is the reason that we so often see ulcerations but not miliary tubercles. At the Montefiore Home where I examine the patients and watch them at a time when they show no symptoms of tuberculosis and complain only, perhaps, of a little scratching in the throat. I repeatedly saw, as I have said, some miliary tubercles.

That in the general treatment of laryngeal tuberculosis pure air is as essential as anything else, goes without saying and this fact has been recognized by the Directors of the Home. Upper Broadway (near 140th Street) where this institution is located has become a great thoroughfare, with entirely too much dust and traffic for consumptives. Therefore, a new home with all modern improvements is being erected in the country at Bedford Station, New

York; and it is the purpose to remove gradually all the consumptives to this country home. This plan will surely bear excellent results in the near future. I need not mention that general treatment is carried out, including hydrotherapy, rest cure, etc. A great problem for us still is how to keep all these patients occupied, but I hope we shall come nearer the solution of this when all consumptives are housed in the country.

We now come to the most important point, the local treatment. The majority of our cases are in an advanced stage, and you will understand that the treatment is thus so much more difficult than it is in many other institutions. At one time the application of different powders was very much in vogue. The most important of these, which still are popular to a certain degree, are boric acid, iodol, eucrophen, dermatol, aristol and pyoctanin. The latter has been used very little in this country, but has been recommended by Bresgen, Rosenberg, Schech and others.

More important were the fluids used for direct application, and there is hardly any new or old drug that has not been recommended. The iodoform ether solution, which at one time could be seen in almost every clinic in the United States, is now very little used; Rosenberg's menthol with oil, carbolated glycerin, resorcin, balsam of Peru with collodion, the phenolum sulfuricinicum, the injections of creosote and orthochlorophenol in glycerin, have all their followers still, and all have been applied with some satisfaction in a certain number of cases.

The remedy par excellence which for the last ten or twelve years has predominated over all is lactic acid. I can speak with a certain authority about lactic acid, as I witnessed the very first experiments made in Berlin in 1885 by Prof. Krause, and followed up some of these cases until their death. Since 1885 I have used lactic acid constantly. I know its advantages, and have learned its disadvantages as well. We had seen tuberculous ulcers heal under nitrate of silver, under zinc chlorate, and other astringents, but it was claimed that the proportion was larger under lactic acid. There was some truth in this assertion, and I myself applied lactic acid during all that time—merely for want of something better, for I knew

how many patients dreaded these applications; the pain which lasted sometimes from 10 to 20 hours after lactic acid has been rubbed into the ulcerations was terrible to them, and others again feared the spasm of glottis more than their usual pain. In a dispensary, where consumptives come and go, we do not notice how many stay away from such treatment, and judge only from those who remain for treatment. It is different in a sanatorium where the same patients are seen constantly, and I know quite a number who used all kinds of excuses only to stay away from lactic acid treatment. It is different now. Since new drugs have given us the ability of making these people comfortable, they anxiously wait for treatment, and I have seldom known anybody to miss it voluntarily.

The way we proceed is the following: We generally cleanse the larynx, if this be necessary, with any indifferent spray, or swab it with cotton, etc. This is advisable also when there are secretions below the larynx in the trachea and down to the bifurcation. This previous cleansing makes the patients cough up the greater part or all of this secretion, and they can retain the drugs better. Whether these drugs do not in this way reach some ulcerations in the trachea which cannot be seen by laryngoscopic examination, is a question which I should not like to decide here. It is, however, conceivable that fluids especially run down the trachea and gradually reach deeper ulcerations in the trachea, too.

After this cleansing a powder consisting of saccharated suprarenal gland (about 3-6 grains) is insufflated into the larynx mostly, of course, on to the ulcerations. I do this in the beginning of the treatment when I do not know the toleration of the patient, for the following drugs. But now it seems to me almost rational to use it in all cases of dysphagia, as it helps to prolong the local anesthesia. I have abandoned entirely the use of cocain for these cases, and this for several reasons. First, the paresthesia following the application of cocain is very disagreeable to many patients. Secondly, it undoubtedly effects the heart in some cases; and thirdly, (this holds good for all cases) the solution decomposes quickly. The powdered suprarenal gland has no toxic effect if applied in this manner; it does not produce the paresthesia, but on the contrary, within

one-half to one minute a pleasant cooling sensation sets in, and finally it does not decompose readily in this powdered form.

The next step is the application of my menthol orthoform emulsion. I have been using this emulsion for over two years, and must say the more I use it the better I like it. Carl Kassel was the first one to use an emulsion with the olive oil. He says in the *Monatsschrift für Ohrenheilkunde* (p. 245, 1899) that my emulsion is a great improvement on his, but that a bad taste persists after its use. I have never heard any complaint of this from any patient, nor from any other physician, and I think the doctor is mistaken in this respect. If anything the taste of the menthol-orthoform emulsion is a pleasant one.

There can be no doubt that the anesthetic properties of the orthoform on the mucous membranes of the ulcerated larynx are of immense value. And there is no longer any question that by means of the application of orthoform we are able to relieve pain, and cause a disappearance of the difficulty in swallowing, lasting, according to my present experience, from a few hours to 3, 4, or even 5 days. These patients are not only able to take nourishment readily, and thereby are placed in a better position for a possible cure, but in favorable cases we completely remove the pain.

In all irritations of the larynx, menthol is of excellent service. No doubt the good results obtained some 15 years ago by my friend Prof. A. Rosenberg, of Berlin, with injections of menthol with oil were due to this fact. It relieves the cough and with this a great deal of the secretion. This is the reason I added menthol to the above emulsion. I use the following:

Menthol	1.0-5.0-10.0-15.0
Ol. amygdal dule.	30.0
Vitelli ovorum	25.0
Orthoform	12.5
Aquae dest. q. s.	ad 100.0
Ft. Emulsio.	

I commence with 1 per cent. menthol in this emulsion, and as quickly as the toleration of the patient permits I increase it to 10 per cent., and it has been in the rarer cases only that I have used 15 per cent. menthol. Men-

thol is a drug that causes a burning pain especially if applied, as it has to be done—directly on the ulcerations. But as I should not like to miss its good effect, as above stated, I frequently induce preliminary anesthesia with the suprarenal gland. But many patients tolerate menthol without any pain whatever.

Permit me to give you now a few examples treated in this manner.

C. B., 48 years of age, has been forty years in the United States; cigar maker by trade. His mother died of dropsy; father of old age, and one brother of tuberculosis. He has three children; one child died of pneumonia. He is a moderate drinker, but heavy smoker (20 to 30 cigars daily). Six years ago he had some disease of the lungs, which kept him in bed five weeks.

Status praesens: October 17, 1899. Patient is below the average height; somewhat poorly nourished. Percussion dull in upper left portion anteriorly and posteriorly. Tenderness on percussion in many places, especially left shoulder. Over both lungs numerous small moist rales, especially over left apex; over right apex expiration roughened and prolonged. Spleen enlarged and palpable. Tubercle bacilli in the sputum. Larynx: Interarytenoid infiltration with papillomatous excrescences, slight ulceration on the right side of the epiglottis. Injection of menthol orthoform emulsion (menthol 16 per cent.); no cocain.

March 22, 1900. Ulcerations on epiglottis healed, and interarytenoid infiltration disappeared. Epiglottis has now marked horse-shoe shape, much thickened. No pain until yesterday. On examination a broad somewhat deep ulceration on right ary-epiglottic ligament was to be seen. For an experiment no application was made.

March 26. Pain in swallowing severe; cannot eat but one meal daily. Ulcer covered with thick tenacious phlegm and debris. Cleansing of the ulcer and application of menthol-orthoform emulsion. This was repeated March 29th, with such success that on April 2nd patient feels much easier again; can eat but has some pain. Ulceration looks clear, and is only superficial.

April 16, 1900, renewed attack of pain on right side of larynx. Right arytenoid enlarged and edematous.

April 21. After a quantity of badly tasting pus had been expectorated the patient feels easier again.

May 14, 1900. Subjectively the patient remained the same during all the treatment: i. e., under regular treatment with orthoform-menthol emulsion he could swallow all the food he wanted, and his appetite being good he ate well. Only when taking thin fluids as water, tea, etc., he had to be careful or else he would get a paroxysm of coughing which would be followed by vomiting. Objectively his condition is worse. The epiglottis is very flat and very much thickened: ary-epiglottic ligaments (especially the right one) infiltrated and the arytenoids enlarged. Ulcers come and disappear again after treatment.

The reason why I selected this case first is to show you how a man with such advanced laryngeal tuberculosis can go around eating his meals regularly, joking and enjoying his life. Of course, *quoad finem*, his prognosis is doubtful, especially as the condition of the lungs became worse. But if this man has to die we, at least, have saved him months and months of terrible, sometimes almost unbearable, pain. Besides we have given him the possibility of being nourished well for the last six months, and if his power of resistance is strong enough he has another and greater chance of recovery. That such ulcerations do heal under the treatment mentioned this case has shown repeatedly.

Before giving you the history of the next case, let me quote from a former article of mine regarding surgical intervention in such cases, I remarked (Philadelphia Medical Journal, March 25, 1899) "I am able to report 29 cases, the history of which I have found, although I know that more than double this number have been operated upon by me. I will, however, base my conclusions only upon these 29 accurately described cases. Of these 18 were not improved, in 7 a slow amelioration occurred which could be attributed to the operation, and in 4 an almost immediate improvement took place. Of the 18 unimproved cases, 13 were in an advanced stage of pulmonary phthisis, that is, with formation of cavities, etc., and 5 were in the earlier stages. None of these 18 patients experienced any relief after curettement; the majority,

indeed, attributed the deterioration in their health to the operation, and in many cases I was of the same opinion. I was struck by the fact that a large number of infiltrations, with or without formation of ulcers, were in the interarytenoid space, forming the well known polypoid excrescences on the posterior wall.

"In the 7 patients of the second class slow improvement occurred, and I have noted this in affections of almost all parts of the larynx. As this amelioration constantly followed on the surgical treatment, I consider myself justified in ascribing it to the latter. In considering the last 11 cases, one would be inclined to regard these surgical operations in the nature of a salvation, but unfortunately we must not lose sight of the first 18 cases, in which the results were not good. And if I were asked to give the indications for curettement I would not be able as yet to state them accurately, in spite of the fact that many laryngologists have studied the subject for over a decade. An important factor is that we are still unable to observe or appreciate the extension of the tuberculous process to the invisible portions of the larynx, or the contiguous parts, or otherwise to form an idea of its progress, which is governed by laws as yet unknown to us. As for me I always regard such intervention as an experiment, and leave the decision to the patient. We learn, therefore, from the above statistics that while we have been able to effect some excellent results, we have not been spared marked disappointment in a large number, and, indeed, in the majority of cases."

This was my standpoint somewhat over a year ago. I therefore resolved to try for one year without curettage. There were several cases in which, according to former views, curettement was indicated. Although I was tempted to do it repeatedly I abstained, and after a year's trial without curettement I believe my patients are just as well and perhaps better off than they would have been with the operation. Whether in the future I might not come across any cases in which it will be indicated, I cannot say. My present view may be illustrated by the following case.

M. G., 49 years of age; waiter; four years in the United States. Father died at 46 of some sudden throat illness;

mother died at 58 of pneumonia; two sisters and two brothers well; wife and children all well. Was well up to three years ago, when he had a chill, and on the following morning could not talk above a whisper. Last winter he began to cough and expectorate; no pain, but could not eat; had night sweats: has lost 13 pounds in the last four months.

Status praesens: September, 20, 1899.

Extensive dullness over both upper lobes; exaggerated respiratory murmur; here and there moist rales. In limited area slight bronchial breathing; whispered voice, sounds not increased. Heart sounds somewhat accelerated. Sputum contains tubercle bacilli. Patient has had repeated hemorrhages.

When my service commenced on January 1, he had outspoken tuberculous laryngitis, especially infiltration of the left ventricular band. This infiltration was so marked that it covered the whole vocal cord. There were superficial ulcerations on the left ary-epiglottic ligament, and patient had a great deal of dysphagia. He received injections of orthoform menthol emulsion, first only once a week, then twice weekly, and felt very much improved. During my temporary absence from the service he did not get the injections, and felt worse. His condition improved as soon as I resumed the treatment. No ulcerations to be seen now, but he feels better after the injection.

Now after five months' treatment the patient is in such a condition that he very rarely complains of pain. The infiltration is so much less that the vocal cord can be seen; there are no ulcerations, and the thickening of the left ary-epiglottic ligament has disappeared. The patient would not think of submitting himself to operative interference, and I am of the same opinion. There is a great possibility that if we stopped with the orthoform menthol emulsion his pain would return, also his irritating cough, and through that probably ulcerations and infiltrations (?) too. But as long as these injections can be administered so easily, why discontinue them? Why try anything else?

There is one point I cannot emphasize enough, viz., to make these injections carefully. If one is in a hurry and injects the whole syringe full at once, in most cases a coughing spell will set in, and bring up all the emulsion.

This will occur even when the preliminary anesthesia of the larynx with the suprarenal gland has been effective, as a good deal of the emulsion goes down into the trachea. But if one is a little careful and injects the emulsion slowly it will adhere to the surface, and the good results will surely appear.

There are some patients, however—and luckily they are the exceptions—who cannot stand anything, be it cocain or anything else. They gag at the slightest provocation, or they vomit just as easily. These are patients who lack the smallest particle of energy, or who are exhausted from a very long illness, and near the end. For this class I have tried olive oil.

Last year Paul Cohnheim, an assistant of Boas, of Berlin, reported the case of a man with *ulcus ventriculi*. This man on his own account had for weeks taken large doses of linseed oil, and was thus cured. This oil worked like a grease (lubricant) by diminishing or abolishing the friction. We see this, as Cohnheim correctly says, in other parts of the body, too, as for example in the urethra and anus. Just as easily as large masses of feces pass the anus with comparative ease, even in the presence of *rha-gades* or ulcers, so does food pass the oiled stenosed *pylorus*. Rosenheim applied this treatment in carcinoma of the esophagus with surprisingly good results. Also Boas and Akimo-Peretz saw good results. The latter gave 50 to 100 grams of an emulsion of oil of almonds daily before each meal.

I read all this only a short while ago, and the thought struck me that by lubricating the esophagus with any oil the food ought to pass more readily through that difficult place behind the infiltrations or ulcerations of the larynx, thus, partly, at least, relieving the dysphagia. The first case treated in that way was that of Mr. M. Y., 34 years of age, salesman. He was suffering from advanced tuberculosis of the lungs, and complained of great dysphagia and ulcers of the tongue. He was so weak that he could hardly sit up. An examination of the larynx was impossible, as he had too much pain in holding out his tongue. Insufflations with the suprarenal gland, or injections of the menthol orthoform emulsion, or even cocain, were useless, as he vomited up everything. I therefore tried to

improve his lingual ulcerations first. These were situated on and around the tip of the tongue. They spread especially on both sides, and under the tongue at least an inch in each direction. There was no diabetes nor any specific infection. In this case even the concentrated lactic acid had been used before he entered the home, with no good whatever. The application of the menthol orthoform emulsion had the same negative result, and I am almost inclined to believe that orthoform has very little effect on the tongue. But as yet I cannot judge sufficiently in that respect, as these cases are rare. At any rate, he did not improve, and as an experiment I gave him a glassful of olive oil one-half hour before his breakfast. After four days he said he could swallow a little easier. I now had 10 per cent. nitrate of silver applied to his tongue, and injected into the larynx a few drops of the menthol orthoform emulsion, which he retained. The olive oil was continued, and three days later he again felt better, and I was able to examine his larynx. There were deep ulcerations on the epiglottis, and both ary-epiglottic folds. Vocal cords irregular and ulcerated. His tongue improving but slowly, I again tried lactic acid for it, but if anything it made it worse.

These cases of lingual tuberculosis are not frequent, and I just recall one case by C. E. Bean, of St. Paul*. He says: "Lactic acid has been very much vaunted, and one or two cases are reported as having been cured by means of this remedy, well rubbed into the ulceration; but the numerous failures to even afford temporary relief seems to demonstrate the fact that it is no more to be depended upon when the disease is situated in the tongue than when it has been developed in the larynx; and the result of treatment in that location has been disappointing." My experience is about the same. I cannot report much more about the patient, except that within a few days he could swallow a little easier, and that he left the "Home" for Europe.

The next case I treated with olive oil was a private patient, Mr. N. O., 48 years of age, a business man. Eighteen years ago he acquired syphilis, and since four years

*C. E. Bean: "Report of Two Cases of Buccal Tuberculosis," The New York Medical Journal, September 14, 1889.

tuberculosis. He complains only of great dysphagia, and the conditions are about the same as in the previous case. He rejects everything, and an examination in his bed is impossible. I ordered one glassful of olive oil every morning which he took with great reluctance. After five days the house physician reported to me that there was some improvement in swallowing. I then saw him three days later, and after taking the olive oil with great disgust he felt much better, as he had been able to take quite some nourishment. As he had now decided to leave for the country I did not make any further trial with orthoform, etc., but advised him to continue for some time with the oil. At his last visit I saw in the larynx all the symptoms of advanced tuberculosis. A few weeks later I heard that his dysphagia was improving steadily. In the two other cases treated with olive oil I did not see any improvement whatever, and I shall not report them in detail. However, I consider it just, in suitable cases, to give this a further trial, and shall do so in the future.

The last of our resources in treating laryngeal tuberculosis is phototherapy, or treatment with the electric light or sunlight. I have had some results with that treatment, but I have not reached any final conclusions in regard to it. However, I shall publish all my experience in phototherapy in the near future elsewhere.

And now only one word about the bronchial cough in these cases. Among the most distressing symptoms of laryngeal tuberculosis is the concomitant bronchial cough, which is often of a most harassing character, and contributes materially to the patient's exhaustion by preventing rest at night. For its relief we were formerly forced to rely upon morphin and codein, although both these drugs left much to be desired. Aside from its well-known after-effects, morphin is particularly objectionable because of its tendency in many instances to disturb the digestive organs, and thus impair the patient's appetite. Codein, while in general preferable to morphin, has the disadvantage of being uncertain and unreliable in action. The introduction of heroin has been a decided advance in the treatment of cough in phthisical cases. In the Philadelphia Medical Journal, of March 25, 1899, in an article on the "Treatment of Dysphagia and Cough, Especially

in Tuberculosis," I reported my preliminary results with this new drug, which were most favorable. Since then its continued use has given very satisfactory results. The irritable cough in tuberculous patients frequently yields to the administration of heroin, and this occurs in cases in which both morphin and codein have proved completely inefficient. The action of heroin in modifying the respirations by diminishing their frequency and increasing their force, renders the breathing much easier. Aside from some lassitude and slight constipation, I have never observed the least after-effects from heroin, and as my experience relates now to several hundreds of cases in dispensary and private practice, I feel convinced that the drug is perfectly safe when used with ordinary precautions. In several instances, however, the constipation was sufficiently marked to call for the administration of laxatives, such as extract of cascara sagrada and aloin. My observations in this respect are in accord with those of Einhorn, Manges, and others, who have reported their results. Although we cannot be sufficiently conservative in admitting to our confidence any new remedy which claims our attention, my experience with heroin has now been so extensive that I have no hesitation in assigning to it a prominent place in the list of medicaments for the relief of cough.

In summing up my experience with tuberculous laryngitis I should like to emphasize the fact that there is a pathologic condition which might justly be called pretuberculous laryngitis. This ought to be treated with great care in every consumptive patient.

Regarding the treatment of laryngeal tuberculosis we are nowadays fortunate enough to give great relief to by far the majority of these patients. Of these remedies which are so potent I should like to mention: 1. the saccharated suprarenal gland for the induction of preliminary local anesthesia. 2. The menthol orthoform emulsion for the production of a larger local anesthesia, and for its curative effects. 3. Olive or almond or sesame oil for the relief of the dysphagia. 4. Phototherapy, and 5. Heroin for the relief of bronchial cough. Lactic acid ought to be dispensed with as antiquated and barbarous torture to the patients.

Finally, I would like to say that here is a large field for further fruitful investigations in which everyone of us ought to be interested; and the more we work in this field the more relief we shall give to our patients, and the more cures we will effect.

IV.

LARYNGEAL TUBERCULOSIS.

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The laryngeal, of all the forms in which this disease finds expression, is the most violent and intense. No other gives the patient such a severe test of endurance as does a deeply ulcerated tubercular larynx. Few patients in any condition demand relief more earnestly, or incite in the physician more effort, worry and attention, than do these cases.

Hence, it may be quite pertinently asked—are we not justified in using heroic remedies in those cases which are well advanced, in which there is locally ulceration and much tumefaction, knowing as we do the torture many of them necessarily entail in the application? In answering this question in the affirmative, I recognize that many men who have doubtless made more extensive researches than I, would say that we are not so justified in severe therapeutic or surgical measures, especially in those cases where there is extensive lung involvement. I will not enter into a further discussion of the case than to say that since we are apparently so near and yet so far from knowing what that specific is which nature or science yet guards in secret, and while we know that we can, by certain lines of treatment, therapeutic, surgical and hygienic, cure a small percentage, and at least relieve a much larger percentage, we are not justified in withholding from the suffering every effort within our command. Whether this effort shall be merely a palliative one in intent, remains with the physician, and his judgement must be based largely upon the conditions which may present in that particular case.

Differentiation. Before entering more directly upon the subject, I wish to emphasize the fact that a careful diagnosis is in these cases most important. Because a patient has had a persistent high temperature, free expectoration, dysphagia, loss in weight, difficulty of breathing, and hoarseness, or any such line of symptoms, it does not positively determine a tubercular infection. A streptococcus or other infection may give practically the same line of symptoms. To my mind there is no more nearly a pathognomonic symptom of tubercular laryngitis, aside from microscopical demonstration, than is found in the turgescient arytenoid or epiglottis. If with this we also find the ulceration, dysphagia, hoarseness, and temperature, our microscope will usually reveal bacilli present, and our diagnosis is a positive one. It should, however, be recalled that it is at times a difficult matter to demonstrate the bacilli even from the deep scrapings of a laryngeal ulcer.

Syphilitic or rheumatic conditions must not be overlooked in differentiation. A distinction must always be made between the catarrhal laryngitis and that form in which there is present the typical tubercular infiltration and ulceration. However, with modern methods of percision, and reasonable care, difficulty in a positive diagnosis will not frequently be experienced, and as good a diagnosis will be made with certainty much earlier than was previously possible.

Etiology. The etiology of this condition has been a matter of perennial discussion among investigators, and it will be an unsettled one until it is positively determined that the disease may be a primary conditon. True it is that the preponderance of the best opinion is now largely corroborative of the possible existence of a primary tubercular laryngitis in not infrequent cases.

Syphilis is sometimes a coincident or previous condition and when suspected should be treated specifically. While possibly not a direct etiological factor, if present, it might play a very important part in the treatment of the tubercular condition.

The family history, hygienic conditions, individual characteristics, etc., play an etiologic part much the same as in other tubercular infections.

Dr. Jobson Horne¹ presented an abstract of a vast

amount of original work in the way of an endeavor to establish a possible pathogenesis for the condition. He concluded that the tubercle bacilli once having gained an entrance into the lymphatic duct, they acted as an irritant, and by such presence caused cell proliferation; and consequently we may quite naturally expect that those parts which are most fully supplied with the lymphatics would be the ones most likely to break down and ulcerate. That this was literally true, all his investigations, clinics, post-mortems, and the microscope tended to prove.

Our present knowledge of bacteriology and pathology would, I believe, warrant the assertion that the tubercle bacilli must have an abraded surface, or one in which there is some infiltrating condition present upon which to become lodged.

The cause of practically all the changes occurring in laryngeal tuberculosis may be found in the tubercular infiltration of the mucous membrane. As is well-known, it does not ordinarily involve the entire mucous membrane, but is limited to certain portions or areas, much similar to the greyish spots we may observe earlier in the course of the disease. When these spots of infiltration undergo a caseous change, we have the resulting ulceration.

If this infiltration be situated at or near the posterior portion of the arytenoids, the irritation afforded by talking, coughing, and deglutition will all the more speedily tend to develop the ulcerative condition.

No portion of the upper larynx, nor even the epiglottis, can be said to be free from these infiltrating attacks. That chronic follicular pharyngitis will sometimes afford a focus for the process, there can be no reasonable doubt.

Karkünoff² says that the tubercle bacilli in some manner get into the subepithelial layer of the mucous membrane. These tubercle bacilli soon produce the resultant bacteria, and the lymph space is thus soon filled, and invades the epithelium. At this stage, copious infiltration of the epithelial covering with leucocytes invariably takes place. This infiltration of these lymph spaces, with both the leucocytes and the tubercle bacilli, soon impairs the nutrition of the epithelial covering, from which malnutrition it becomes dry and anemic. The constant muscular action of the surrounding parts produces a fis-

suring which quite naturally and easily leads to an ulcerative condition; hence, if the above proposition be a tenable one, then we may safely conclude that the tubercle bacilli are the principal cause of the tubercular ulcerative process. It, in all probability, is not an infection from the lungs, via the sputum and coughing, but is contracted via the blood or lymph channels from some source of infection elsewhere in the body.

While much has been added in the way of exactness and certainty in microscopic minutia and the work of the bacteriologist, yet little new in symptomatology or reliable treatment has been suggested in the past ten years.

Important Symptoms. The most usually present objective symptoms of the disease are temperature, cough, hoarseness, dysphagia, increasing effort for phonation, muco-purulent secretion, and sometimes dyspnea; though, as already noted, even the presence of all these without the corroborative evidence of the microscope, the turgescence and the ulceration does not in any case positively establish a tubercular infection. The history of the case and the family history must each be considered.

Dysphagia, while not always present in cases without ulceration, is always present in cases which have advanced to the ulcerative stage, and its severity depends much on the extent and character of the ulceration. Even a small ulcer on the edge of the epiglottis will at times produce an excruciating pain on deglutition, while there may be quite an extensive ulceration on the false vocal cords without serious inconvenience on swallowing.

Cough is a most persistent symptom, but because of its so frequent occurrence in many other conditions, it fails in these cases to be of more significance than a subjunctive indication.

So also the same might be said of the hoarseness to a great extent.

The dyspnea is fortunately not often of a serious character, though in rare cases it has been found necessary to do a tracheotomy.

Vanderpoel¹ claims the first premonitory symptom is frequently the constantly increasing effort at phonation. His argument seems reasonable, and probably is in a measure true. The other symptom of which this same

authority speaks is that, before there is evident any infiltration of the mucous membranes or tissues or before there has occurred any ulcerative process whatever, there is over the mucous membranes of the arytenoids and vocal cords, perhaps also on the epiglottis a thin, sticky, whitish muco-purulent secretion.

The turgescence of the arytenoids or other adjacent parts is to my mind the most nearly pathognomonic of all the symptoms named above. This I recognize, however, as largely a matter of personal experience and opinion. So few possible other conditions are found which simulate this one, and none which the history of the case will not quickly clear up, that many careful observers are wont to rely largely upon its presence or absence in verifying a presumption of laryngeal tuberculosis.

Semon, Sisson, and others give to the dysphagia the greatest importance as a symptom factor. Semon says: "Pallor, particularly if limited to a portion of the larynx, is more suggestive than general anemia." This pyriform turgescence of the arytenoids will be found in practically every case in which hoarseness is present, and sometimes even in cases where there is no hoarseness present. This tensely swollen membrane is usually pale and anemic, thus plainly paving the way for an ulcerative process, which unfortunately so frequently follows. That this turgescence is directly or indirectly the result of the tubercular infection, cannot be doubted, as it differs so materially from the turgescence of acute laryngitis, both as the color of the membrane and in the history of the case. It, however, must be differentiated from malignancy largely by the revelations of the microscope.

Tubercle bacilli are much more easily and frequently found in the ulcerative than in the infiltrative stage of the disease. Even in the ulcerative, they are not often found in the superficial coating of the ulceration, but only in the deeper scrapings. It is peculiar but true that we will often find but few tubercle bacilli in those cases which seem most malignant, and as well there will sometimes be found in the slow chronic case the most abundant growth of bacilli. The microscope will sometimes settle positively the character of the case which is of an uncertain pathology, having no pulmonary indications present.

The impaired motility of the parts and muscles is a most significant symptom when present. The pain in the ear of which some authorities speak, and of which many patients complain, I believe, in almost every instance to be due to a pathologic condition of the tonsils rather than to the tubercular infection.

In most instances, before the ulcerative process has set in, the membrane, especially over the arytenoid cartilage, will become pale, then infiltrated, and later the small whitish-yellow nodules in the membrane will show the deposit, these break down and form by coalescence the ulceration having the ragged edges and covered with a greyish tenacious mucus.

Primary Laryngeal Tuberculosis. Does it exist? St. Clair Thompson³ and others have maintained that there is such a pathologic entity as a primary laryngeal tuberculosis. In these cases, there may be nothing more apparent in the objective examination than we would ordinarily find in the so-called cases of catarrhal laryngitis, the necessary differentiation always being made by the microscope.

If we recognize it as a fact that tuberculosis does attack primarily almost if not every other part of the human economy, there is no reason why it does not similarly attack the larynx, and furthermore, the test is rather our inability to recognize it as such, than that it does not occur. There has been no reason advanced why this portion of the body should be blessed with such an immunity. I am convinced it is largely because we have not yet reached that point of perfection in diagnosis which will enable us to eliminate all other possible complications. Doubtless there do exist frequently some insidious concealed symptoms of pulmonary infection which we are unable to detect. But our present basis of argument must be from present knowledge and not from the exactness we may hope will some day be attained.

Circumstances in some cases would seem to force the conclusion that we have forgotten to make the most profitable application of our present knowledge, not that we should build much on an occasional good result, nor that we should maintain our ability to cure a large percentage of cases of laryngeal tuberculosis—if we could but see

them earlier in the course; but only by a legitimate and ethical assurance lead these patients to a realization of the increased probability of successful treatment when seen early, for only thus can we expect a reliable demonstration of our theories of prophylaxis and cure. We must impress upon those, whom we find to be within the pale of its implacable influence, the importance of recognizing and constantly combatting these elements of predisposition and heredity which may chance to be present, for there can be no more important elements in the etiology of laryngeal tuberculosis than predisposition and heredity.

Gible⁴ says that primary laryngeal tuberculosis, though rare, is much more common than is the same disease in the pharynx.

There are but few conditions possible in the larynx which might simulate the turgescence of a tubercular infiltration and not be tubercular; indeed it is doubtful if most such conditions would not, unless given special care, sooner or later develop into the tubercular infection.

"If there is a very fine crenating or fringing of the mucous membrane stretching across the inter-arytenoid folds, it is to be considered almost pathognomonic, and is not infrequently detected in patients who have not the least pathology discoverable in the lungs."—(Horne.)

Hoch⁵ maintains that 30 per cent. of all cases of pulmonary tuberculosis have laryngeal complications in some form.

Barnheim⁶ reported 29 cases of distinct and well defined cases of primary laryngeal tuberculosis. So also Bullen⁷ and many other equally creditable observers among whom may be mentioned Gougenheim, Heinze, Moure, Hilary, and more than a score of others less widely known. On the other hand, there are but a very few creditable modern writers on the subject who yet hold to the opinion that a tubercular larynx must always be secondary. Sisson⁸ does not believe in primary laryngeal tuberculosis, yet he admits that the showing of Küer, Ruge, and others, have clearly demonstrated that it does exist. He, as well as others, assumes the doubting Thomas attitude, and yet with a persistent inconsistency fails to give a single tangible reason either anatomic, physiologic, pathologic, or bacteriologic, why such an infiltra-

tion or ulceration may not occupy this particular portion of the respiratory mucous membrane as well as any other. It would seem to the unprejudiced and ordinary observer that the preponderance of evidence is much in favor of the not infrequent existence of primary laryngeal tuberculosis.

Methods of Treatment. What of the ways and means which have been suggested as reliable treatment for the condition? It is needless to say that they are, as those for tubercular conditions elsewhere, much more numerous than successful and reliable.

The methods of treatment may be either therapeutic or surgical, or both, as the peculiarities of the case or opinions of the physician indicate. True it is, however, that there are few pathologic conditions presented to the modern laryngologist requiring a finer discretion and judgment in the application of the best means, whether mild or vigorous, surgical or therapeutic. There being so frequently a marked and at the same time important variation in each individual case as to demand a special rule of action.

I cannot refer at any length to the various remedies which have been suggested as reliable therapeutic agents for the disease, but will note the few following as most important, or at least as bearing the stamp of responsible sponsorship. Iodoform, calomel, guaiacol, lactic acid, chromic acid, perchlorid of iron, alcohol, boric acid, salol, carbolic acid, nitrate of silver, menthol, iodol, creolin, benzoin compound, and many others have been used with reported success.

Krause⁹ in 1886 was the first to recommend the local application of lactic acid as a therapeutic measure for laryngeal tuberculosis. Doubtless many cures and no small amount of relief has been afforded by its use, but that it is not an infallible remedy will be freely admitted as with all others.

The lactic acid is applied, after cleansing the larynx, in as strong a solution as the patient can bear, ranging from 20 per cent. to 90 per cent. In many cases, when applying this remedy, guaiacol, or other such heroic treatment, it is necessary to anesthetize the larynx before making the application, with a solution of holocain or cocain. This

treatment is endorsed perhaps more widely than any other by laryngologists, and certainly is effective in many cases. Bronner¹⁰ highly commends it, and also advises a free incision into the turgescient tissues, but this latter measure is now so generally condemned by the profession, as being poor surgery, as to almost invalidate other conclusions of this authority.

Vascher advises the injection of a saturated solution of iodoform in ether, and for this method has had many enthusiastic supporters. He also advises with this the alternative application of a mild solution of guaiacol and menthol in severe cases.

Richards,¹¹ Spengler, Zinn, Simanowsky, Bayer, Gleitzman, and others, speak in the highest terms of paramonochlorophenol, which is either applied after the manner suggested by Krause for lactic acid, or when practicable, is injected in small doses. Personally, I have not had the results from brief trials of the drug for which I had hoped.

Guaiacol has been one of the most reliable therapeutic agents yet suggested. Donnellan,¹² whose method I have followed in general, uses a submucous injection once every four to seven days. I differ from him only in the strength of the guaiacol solution used, and sometimes in the frequency of the application. He uses a 10 per cent. to 40 per cent. for application, and a somewhat weaker one for the injection. I have had the most satisfactory results from a solution double this strength. I have rarely had much trouble in beginning with a 20 per cent. solution of guaiacol as an application, and by treating the patient every other day, have had little difficulty in rapidly increasing the strength of the application, so that at the end of ten days or two weeks, I could use an 80 per cent., or in some cases a full strength solution. Individual characteristics or circumstances may in some cases contraindicate either so strong a solution or so frequent application; and also in those cases where the injection method is employed, the applications are alternated and the time between each is slightly more than doubled, inasmuch as the therapeutic, anesthetic, and systemic effects of the injection are much more durable and pronounced than can be the most carefully made local application. Of course,

the use of such remedies can be made only with the utmost care, and only in those cases where a reasonable amount of throat control on the part of the patient is present.

Previous to the application or injection of the guaiacol, I cleanse the mucous surfaces with a warm, alkaline, sterilizing spray not too vigorously applied. Then either by spray or swab, I apply an anesthetic of holocain and antipyrin, 1 per cent. of the former and $1\frac{1}{2}$ per cent. of the latter. If the guaiacol be then immediately applied, or injected with care, the patient will not suffer to any extent, further than a transient burning sensation, of which few of them complain after the first treatment.

I have three cases which have now lived for over two years since having the above treatment. Two of these have yet apparently no infection elsewhere; the third informs me that while in apparent good health, he has been gradually losing weight, and has a more or less constant temperature, though no hoarseness, cough, or other symptoms referable to the throat. A fourth and fifth case, which were both under treatment two years ago this month, and with equally good results as to the throat condition, both succumbed within the past two weeks, the one with hepatic and intestinal tuberculosis, with practically no pulmonary involvement at all; in the other case, no post mortem was made, but the reported and presumable cause of death was acute pulmonary tuberculosis. In each of these five cases, the diagnosis was unquestionable, both symptoms and the microscope confirming it beyond doubt. Each of these patients, after recovery from the throat condition, were advised to seek the additional benefits of a more desirable climate, all except the third one referred to above, who is threatened with a relapse, accepted the suggestion; The first two going to Colorado, the fourth to Georgia pine regions, and the fifth to San Antonio.

Several other cases might be referred to with equal satisfaction, but their apparent recovery is yet too recent to be of a statistical value. My percentage of recoveries I do not herald as unusually large, but I am convinced that, in my limited experience of about twenty-six cases in the

past five years, I have not found any remedy so frequently or so generally satisfactory in its results.

In those cases where it is possible to use the injection method, it seems especially valuable, as the speedy relief which it gives to the dysphagia is always most grateful to the patient. In this respect, I find it preferable to the lactic acid, which, "especially when associated with the curette, usually aggravates the distressing symptom of dysphagia."

Donnelan has suggested a form of throat syringe for this injection, which I have found very convenient in many cases. I believe there are fewer possible objections to the guaiacol than to the lactic acid. The latter will sometimes give a reaction which will irritate the edema and increase rather than reduce it. I have never had such an experience with even the stronger solutions of guaiacol, either applied or injected.

Surgical. As to the surgical treatment of laryngeal tuberculosis, there is quite as much difference of opinion as there is concerning its therapeutic conduct. True it is, that the treatment both local and general must be mild or vigorous according to the condition of the patient. Of the first importance in all cases, and particularly in those well advanced, there must be as nearly absolute rest of the voice as is possible.

Lenox Browne¹³ said permanent benefit in any well defined case is very doubtful. He advises the use of cocaine to relieve the pain, with the actual cautery and lactic acid applied locally to destroy the deposits and induce a healthy growth of the parts.

The surgical treatment of the condition may consist of (a) incision, (b) curettement, (c) submucous injection, (d) electrolysis, (e) galvanocautery, (f) laryngotomy, (g) laryngectomy, (h) tracheotomy, and (i) intubation.

Botey¹⁴ who was the first to suggest tracheal injections for the cure of tubercular laryngitis, considers surgical treatment contraindicated in both the acute and subacute stages, and also when there was a general infection of the whole organ with infiltration and ulceration. But it would seem that if these limitations were literally followed, indeed but few cases would be by him considered proper subjects for surgical treatment. Botey operated

for laryngeal tuberculosis 100 times with results that appear fairly good. He maintains that results will depend largely on the selection of cases, but what operation in all surgery, may I ask, is not amenable to this same rule of action? He does claim that in some few cases cures resulted, and in most cases life was much prolonged.

Heryng's¹⁵ method of curettement, which is well known to all laryngologists, is unquestionably the safest, easiest, and most satisfactory method of laryngeal curettement.

Gleitzman¹⁶ gives as follows the patients who are fit subjects for curettement. (a) In cases of primary tubercular laryngitis without pulmonary complication; (b) In circumscribed ulceration and infiltration. (c) In dense infiltration of arytenoids, of ventricular bands, and in tumors of the epiglottis. (d) In the insipient stage of pulmonary tuberculosis with little fever and no hectic symptoms. (e) In advanced pulmonary disease with distressing dysphagia.

Surgical means and methods would be more satisfactory in results if the infection was always limited to a certain well defined area, but since there is so frequent complication or infection of other adjacent tissue or gland, it hence becomes difficult or impossible to make a thorough removal of all the infected tissue. This fact, as well as the natural inaccessibility of the parts, renders the possibilities of surgery much more limited than they would otherwise be. Some cases, from their nature, and the various complicating conditions which may be present, render the harsher and more radical methods of treatment inadvisable.

There are, moreover, several very potent reasons why the operation of curettement in laryngeal tuberculosis has been rather reluctantly accepted by the profession—too often we cannot hope to benefit, much less eliminate the concomitant pulmonary disease with which the patient is affected, nor can we always succeed in removing all of the tissue which is diseased, and then subsequently prevent a relapse if we do remove it thoroughly. Indeed, Hajek reports a case in which he curetted 12 times in one patient before he was able to establish a permanently healthy condition.

Scheppergrell¹⁷ claims for the electrolytic application of copper sulphate in laryngeal tuberculosis the following advantages: (a) No real destruction of tissue or laceration of the surface; (b) No hemorrhage or other reaction; (c) The method is easy and practical; (d) Only method applicable to all classes of cases.

Shurley¹⁸ avoids the danger of spasm, hemorrhage and swelling by doing a preliminary tracheotomy; such operation, however, is not advised in extensive lung involvement; neither is it advisable in those cases where the lesion is slight, or situated about the vestibule of the larynx. So that with such a limited field of application, is it not rather a serious complication unnecessarily added to an already serious condition?

We must, in all cases, assist the powers of assimilation and urge them on to the utmost endeavor. The general vitality must be ever quite as important a matter for consideration as is the local condition. Remove all possible results or products of diseased processes and enjoin a rigid discipline to the best rules of hygiene, with forced feeding if necessary, and our local applications will be all the more effective.

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V.

ACUTE EDEMA OF THE LARYNX: REPORT OF A CASE

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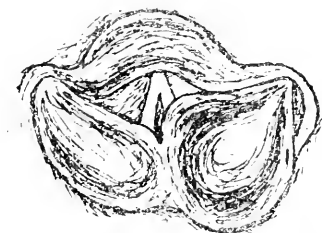
Acute edema of the larynx as a complication or phase of laryngitis, is a tolerably rare affection. When occurring it constitutes a very grave condition, on account of the extremely important influence that even a slight effusion may exercise on performance of the vital process of respiration. Recovery from acute edema of the larynx of primary origin is always doubtful. The issues will be influenced largely by the stage at which the condition comes under treatment, and by the amount of success attending local remedial measures correctly and vigorously adopted (Lennox Browne). All authorities agree that this condition is usually secondary to some general disease such as cardiac diseases, nephritis or phthisis, some claiming that it never occurs as a primary affection.

The following case is of interest because the disease is a rare affection, and because it is a case of primary origin, the patient being entirely free from any general disease. The prompt response to treatment and the complete recovery is also worthy of note.

Mrs. B, age 30, wife of a prominent physician in a neighboring town took a drive March 12th, 1900; the weather was raw and windy and as a result of the exposure she contracted "a cold" in her throat. Within 24 hours her voice was hoarse and within 48 hours the trouble had increased to such an extent that she had great difficulty in swallowing. From this time on the symptoms became rapidly worse. Her voice disappeared entirely, but by great effort the patient could make whispered noises, difficult to interpret. She was obliged to sit up

and lean forward to get her breath, she could not swallow because of swelling and pain. The pain was constant and aching in character, somewhat relieved by the free use of a solution of cocain sprayed into the throat, which also gave some relief to the breathing. Temperature normal.

Arriving at her home at midnight March 17th, 1900, I found her in the condition described above, cyanotic and suffering from severe dyspnea. Examination with the fingers on the outside revealed a swelling in the region of the larynx, more marked and tender upon the left side. The skin was not reddened and the swelling was not acutely tender to touch. Laryngoscopic examination at once revealed an edema of the glottis of large proportions. On the left side the swelling completely overlapped the cord, on the right side the cord could only be partially seen.



Acute Edema of the Larynx.

The swelling was pink and had the appearance of mucous membrane filled with serum, the cords were extremely pale.

Treatment:--Under cocain anesthesia, the swelling was scarified freely, resulting in the escape of a little serum, tinged with blood. While this operation was undoubtedly beneficial the improvement was not instantaneous for to counterbalance the escape of serum there was some congestion following. The patient was then propped up in the sitting posture in bed, and attempts at speaking absolutely forbidden. Ice was applied over the swelling, pilocarpine injected hypodermically. The rest of the night the patient slept for three hours, which was her first sleep for four nights. Perspiration was free. In the morning she was removed to the hospital and a saline cathartic was administered, an ice coil was substituted for the more cumbersome ice bag, the pilocarpine was continued with

strychnin as a heart tonic. Examination showed reduction of the swelling. The dyspnea was considerably relieved and the patient was able to swallow a little milk. She was given a nutritive enema in addition however as she was extremely weak from long suffering and lack of food.

Urine examination before and for several weeks showed no albumin nor sugar but a quantity of earthy phosphates.

Leaving her in the care of her husband and another local physician, I received daily reports from her husband, extracts from his letters are as follows:—

March 18th, 9 p. m. Mrs. B. suffered less pain during the afternoon, was breathing easy and slept for an hour and a half, pulse 88 not weak, resting comfortably, drank four glasses of milk during the afternoon.

March 19th, 9:30 p. m. Mrs. B. very much improved, able to swallow, rested well, slept most of the night and some in the daytime. Pulse became intermittant after pilocarpine this p. m., but later of good volume and regular, 90 per minute. Laryngoscopy showed swelling right side, all gone, left much deminished.

March 20th, 9 p. m. Mrs. B. improved very much last 24 hours. Sleeps well, eats well, swallows without any difficulty nor inconvenience, no pain. Laryngoscopy shows right side normal, little swelling on left side. Pilocarpine discontinued. Patient kept quiet and the solution of extract of suprarenal capsule sprayed in larynx every three hours. (I sent the suprarenal extract immediately upon my return to the city. It could not be obtained in the town and hence we did not have an opportunity to test it before she was relieved by other means, but it occurred to me that this valuable remedy would be of service in this disease).

March 23rd, she sat up in a chair, March 30th, the doctor wrote as follows:—Mrs. B. has thoroughly recovered, feels well and is rapidly regaining strength, she has made an unventful recovery.

VI.

ON THE USE OF CAMPHOROXOL, MENTHOL IN DISEASES OF THE EAR.*

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These new remedies are combinations of peroxid of hydrogen and alcohol, with camphor or menthol; they have a pleasant odor and great deodorizing power; they are non-irritating and very stable, their antiseptic power not being perceptibly diminished in time. Peroxid of hydrogen is immediately decomposed as soon as it comes in contact with the secretions of wounds or mucous surfaces; when used alone its disinfecting affect is therefore very transient, while it is claimed for these combinations that after the peroxid has done its germicidal work there remains on the wound surface a substance (camphor or menthol) which continues the disinfection and prevents a new invasion of microbes.

What first induced me to try these "oxols," was the favorable opinion expressed by Prof. Stetter of Koenigsberg who had used them with marked success in a stubborn case of chronic otorrhea, where all known remedies had failed to remove the profuse and fetid discharge and the patient obstinately refused an operation.

The first case in which I tried the camphoroxol was an otorrhea of five years duration. The patient had been quite indifferent to this affection; had never done anything for it, but when last spring the discharge became tinged with blood, his indifference suddenly was changed to fear and anxiety. When he came to me in April, I found the larger portion of the meatus filled with soft, eas-

*Read before the Chicago Society of Ophthalmology and Otology, March 12th, 1901.

ily bleeding polyps. They were removed with Blake's snare; the dead malleus was extracted; granulation masses in the tympanic cavity were removed partly by curretting, partly by application of chromic acid. The tympanic membrane was lost entirely so that the cavity was easily accessible. I then tried various remedies for subduing the discharge, insufflations of boric acid; iodoform in powder, and in alcohol; protargol and formalin. As the attic seemed to be the chief source of the secretions I took particular pains to direct the various remedies to that region either by means of an attic syringe or a properly bent cotton applicator. But though the secretion at times became very scant it never ceased completely and my repeated suggestions of an operation always met with a flat refusal. I was just at the point of giving up the case when I received the samples of camphoroxol and menthol. I decided to try them and thus to give patient another chance. I swabbed the attic with the undiluted camphoroxol once a day and gave the patient a solution of equal parts of camphoroxol and water to drop into the ear every morning and evening. The applications caused no pain; the patient rather liked them. After two weeks conditions had improved so much that I treated the ear only every two or three days, and after two more weeks discontinued the swabbings altogether. There was no more discharge, but I let the patient continue the instillations for another week. I have kept the patient under observation ever since, but up to this time (five months) the ear has remained dry and clean. This unexpected success encouraged me to use the oxols in other cases at that time under my care.

CASE 2. Suppuration of right ear for six years with apparent cessations of discharge of short durations; caries of floor of tympanic cavity; offensive odor though the ear was thoroughly irrigated with boric solution twice daily. As soon as camphoroxol was used the bad odor disappeared; and under its continued use the carious bone healed and the discharge ceased.

CASE 3. Otitis media with mastoid symptoms. Camphoroxol injected through catheter.

May 19, Miss C. B., aged 33, consulted me for an inflammation of the right ear which she contracted in February

by a severe "cold." Hearing was very poor; acoumeter only 20cm.; watch not at all. Copious mucopurulent discharge constantly welling out through a small perforation in the posterior upper segment of the mt. Swelling and tenderness over mastoid region. A free incision of the mt. to establish good drainage for the secretions pent up in the middle ear, had a very good effect; the mastoid symptoms disappeared and the inflammation subsided so that soon the catheter could be employed for the thorough expulsion of the muco-pus and also for irrigating the tympanic cavity with boric acid solution through the Eustachian tube by the aid of the intra-tympanic catheter. Under this treatment the case did fairly well during the month of June; some days the discharge was so slight that the final recovery seemed to be a question of a few days; but suddenly it became very profuse again. As the free opening in the mt. precluded any retention of secretions in the tympanic cavity these repeated sudden returns of a copious discharge proved unmistakably that the antrum was involved. I therefore began to prepare my patient for the necessity of an operation and when in the beginning of July the classical symptoms of mastoiditis (redness, swelling and great tenderness) accompanied by violent pain in the head and rise of temperature developed all of a sudden, I strongly urged the performance of the operation. But I could not get the patient's consent; her fear of an operation was so great that in spite of her intense suffering she begged me to put it off as long as it was safe to do so. How long the operation may be safely delayed under these circumstances, of course, we never can tell, as danger signals may light up at any moment. But in as much as there were no danger signals up as yet I decided to accede to her entreaties of postponing the operation for a day or two because I thought I was more likely to get her consent by yielding than by refusing. I was then using camphoroxol with apparently good effect in the case of old otorrhea reported as No. 1; and as I had found its application was so absolutely painless and non-irritating, it occurred to me I might as well use camphoroxol as anything else during the two days of grace I had granted. I regarded the case as having gone beyond the sphere of medical treatment and was sure the mastoid

operation would have to be performed. So July 8th, I injected through the Eustachian tube by means of the flexible intra-tympanic catheter a solution of equal parts of camphoroxol and water into the tympanic cavity. That this space was well flooded by the solution was shown by the fact that a few seconds after the injection white foam filled the whole external meatus. The patient did not experience the slightest pain during or after this treatment, but felt rather better for it on the next day. I repeated the injection and found on the second day to my great surprise a decided improvement in the conditions of my patient. Redness, swelling and tenderness of the mastoid region had diminished and the headache had ceased. I knew that the patient now was less inclined than ever to consent to an operation; I therefore continued the injections and also gave her a solution of the same strength for dropping into the ear every morning and evening. Under this treatment the mastoid symptoms quickly disappeared; the discharge gradually decreased, the perforation of the mt. finally closed up and since August 1, the ear has been perfectly well.

Other cases of otitis with discharge were treated with camphoroxol and menthol. In these cases the otitis had been going on from 6 weeks to 6 months, and small granulation buttons were present on the mucous membrane. I observed the oxols had no effect upon these granulations and made no impression upon the discharges as long as the granulations existed. After they were removed by chromic acid the ears soon became dry. In these cases the oxols exhibited no superior virtue; for after the removal of the granulations the ears probably would have got well as quickly under the insufflations of boric acid. But in the first three cases I think I owe to the oxols the happy deliverance out of a very awkward dilemma. In every one of the cases I regarded an operation positively indicated, and the patient absolutely refusing, I had to choose between either giving up the case or continuing treatment against my better judgment.

The number of my trials, of course, is too small to draw any final conclusions as to the definite value of these new remedies. Of course they will not make operations unnecessary; there will always be plenty of cases in which

the pyogenic process has gone beyond the control of even the most active germicides; or where the symptoms urgently demand the immediate and thorough removal of all the diseased parts. But the results of my trials, I think justify the recommendation for making further tests with these remedies; being non-irritating they may be used at the early stage of infectious otitis, and perhaps often arrest the disease so promptly as to prevent serious complications.

While these oxols find the main field for their usefulness in the tympanic cavity, they may also be quite serviceable perhaps in the after treatment of mastoid operations and in certain affections of the external meatus. I had no opportunity of trying them in furunculosis; but have used them in a case of aspergillus otitis.

In October, a gentleman consulted me about an intolerable itching and watery discharge of the left ear. I found the inner half of the ear canal and the surface of the mt. covered with a thick, grayish coating, which under the microscope showed numerous specimens of aspergillus nigricans in active sporification. I swabbed the ear canal with camphoroxol and gave the patient a solution of $\frac{1}{2}$ strength to drop in three times daily. The applications caused no disagreeable sensations. In three days the ear was well and has remained so:

VII.

AN EXCEPTIONALLY LARGE MYXO-FIBROMA.— (OCCUPYING THE NASO- AND ORO-PHARYNX AND HAVING ITS ORIGIN IN THE POSTERIOR THIRD OF THE MIDDLE MEATUS.)*

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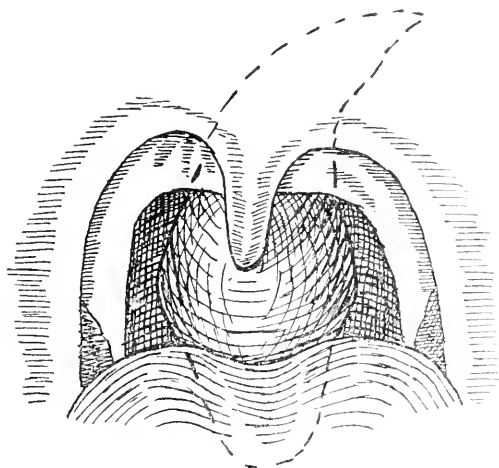
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The patient a man of 52 who was referred to me by my colleague Dr. Wm. J. Jackson, brought a history of having had more or less obstruction to nasal breathing all his life; that during the past 12 or 15 years he had been operated upon a number of times for nasal polypi and a year ago he had a number of polypi removed from each nostril with some benefit to his breathing. For the past 6 months however, he had experienced great difficulty in breathing and had had a number of suffocating attacks. During most of this time he had been obliged to sleep in upright position.

⁵ THE CONDITION AT THE TIME OF OPERATION.—Upon inspecting the oro-pharynx a large pear-shaped glistening tumor was seen hanging from behind the soft palate, and resting upon the epiglottis and isthmus of the pharynx. The tumor filled the oro and naso-pharynx but as it hung from a pedicle and was rather elastic the act of coughing would displace it forward into the mouth over the dorsum of the tongue, then the act of swallowing would replace it again in the pharynx. Examination of the right nasal chamber showed it perfectly free from all polypi. Exam-

*Reported to the San Francisco Society of Eye, Ear, Nose and Throat Surgeons, Nov. 15th, 1900.

ination of the left, showed a glistening mass occupying the posterior naris on that side. After thoroughly anesthizing this chamber and the free use of supra-renal capsule the nasal tissues were so thoroughly retracted that ample room was secured in which to explore the pedicle of the tumor. The end of a probe was bent in the form of a small hook with which the glistening mass in the posterior naris was examined. By making traction upon it the tumor mass in the oro-pharynx could be lifted and further



An Exceptionally Large Myxo-Fibroma of the Naso- and Oro-Pharynx.

search showed the attachment or pedicle to be from the posterior third of the middle meatus.

OPERATION:—My experience in dealing with several cases in the past has been that both the cold and electric snare is not strong enough to cut through these dense fibrous pedicles and I believe that torsion to such a large mass is often likely to fracture some one of the nasal bones. Hence I think we should make an effort to get out these tumors as accurately as possible and remove them with as little violence to the surrounding structures as is consistent with thoroughness. The removal of the tumor in this case was exceedingly simple. The mass was grasped with the vulsellum passed through the mouth and the instrument was held by an assistant. By means of a blunt hook the origin of the pedicle was readily found

and cut away with thin saw-edged scissors. The mass dropped immediately into the oro-pharynx and was drawn out through the mouth with the vulsellum. The remnant of the base of the pedicle was subsequently grasped with Myles' forceps and cauterized with the galvano-cautery. Thorough examination of the nasal chambers showed that this was the only polypoid tissue remaining. Of course the result was most gratifying in every particular. A remarkable point in this case is the extraordinary size the tumor attained before being recognized despite the fact that the patient had been operated upon for polypi very frequently and very recently. A microscopic examination of the tumor showed it to be a myxo-fibroma. The tumor measured $5\frac{1}{3}$ inches in length and $2\frac{1}{4}$ inches across.

Spring Valley Bldg., 135 Geary St.

VII.

A CASE OF STERNUTATION.*

BY MOSSE,

LA ROCHELLE.

The case which I am going to report seems to me to possess a two-fold interest; viz., the duration of the attacks and their frequency, almost without remission from December, 1899, to July, 1900; and the cause, which brought them about and the method of treatment which caused their disappearance.

Though I saw the patient only once during this long period and then she was in my charge for a few weeks, it was easy for me to obtain her history from the facts furnished by her family and the physician who treated her in the country.

Miss X., aet. 18 years; although not of a strong constitution, she had never been seriously ill; measles and scarlatina which she had in infancy had run their course with no complications; she menstruated at 13 years, since which time she had nearly always been regular. Occasionally she had dyspepsia, for which she had been obliged to consult a physician; sometimes she complained of headache and facial neuralgia. Her mother, slightly rheumatic, enjoyed good health in general; her father was a sturdy farmer.

In October, 1899, she suffered from influenza, which affected principally the gastric functions; she lost her appetite and had severe pains in the epigastric region. Then she began to have a dry, frequent, superficial, unsatisfactory cough, which according to the history, was apparently caused by a complicating catarrhal bronchitis.

About December 15, 1899, this stopped very suddenly, and was replaced by sneezing which commenced in the morning and ceased only when the patient went to sleep. The paroxysms were usually repeated seven to eight times

*Rev. Hebd. de Laryng., d'Otolog. et de Rhinol.

a minute, sometimes more, especially after meals; they were preceded by a pricking and itching of the nose. But they were never followed by any considerable discharge; the patient rarely used a handkerchief; the condition of the atmosphere had no influence; the attacks were the same in heat or cold, sun or wind; indoors and out. The only result was a dyspnea and a reddening of the entire face.

In short, there were no crisis of sneezing, but a constantly repeated, monotonous sneeze, terminated only by sleep. She consulted a local doctor, who tried for some months a local treatment composed of antiseptic and astringent powders, and nasal irrigations; then he prescribed in their turn all the known antispasmodics. The treatment continued until the last of April, and having accomplished no relief, he brought the patient to my office.

When I saw her, the young girl was sneezing incessantly; she was thin, cyanotic, bent, with prominence of two shoulder blades. She had neither hysterogenetic zones nor hemianesthesia but rather a certain degree of hyperesthesia of the general senses.

By means of anterior and posterior rhinoscopy, I examined, with my confere, the nasal cavities. The membrane was hyperemic throughout but presented no erosion, no lesion whatsoever, no abnormal secretion. The turbinates were not hypertrophied. The passage way indeed, had in the anterior part of the left side a little bony spur, but I attached no importance to that, because of its small size. The anterior part of the two middle turbinates, considered the true sneezing zone, showed nothing in particular. The mucosa of the nasal and buccal pharynx presented the same aspect, the same congestion but without apparent lesions. There were no traces of adenoids; the tonsils were completely atrophied. Nothing particular in the larynx. I did not find, with the probe, any anesthetic or particularly hyperesthetic region in the nasal cavities.

I made an application of cocain principally to the anterior part of the middle turbinate. The sneezing ceased during the application, but then recommenced. In the same visit, I made with the galvano-cautery a series of cauterization of the mucosa in the same region of the middle turbinate. This operation, perhaps too superficial, had a negative result.

In the first examination the case appeared embarrassing and it was impossible to decide on the nature of this nasal hyperexcitability. I prescribed, as local treatment, applications of zinc chlorid and frequent applications of a salve containing boric acid and cocain. In addition, I advised a general treatment, tonic and antispasmodic. I advised my colleague to return with the patient since a more radical operation would perhaps be more successful.

Unfortunately the patient returned to the country where she lived without consulting the physician until the following July, when she decided to live with an aunt at La Rochelle in order to follow more regularly my treatment.

During these three months, the sneezing had not ceased and the general weakness as well as the curving of the vertebral column I had noticed at my first consultation had made great progress.

In short, the poor girl was cyanetic, very emaciated, completely bent forward, to such an extent that the head and shoulders made almost a right angle with the rest of the body. At the same time she had a complete anorexia, and experience great pains in the epigastric region; she had an atonic, painful dyspepsia, with moderate dilatation of the stomach.

In consequence of the general weakness, I thought it more prudent to build up the strength by means of diet and appropriate medication and to try to sustain by an orthopedic apparatus the vertebral column in which I found no grave lesion. I prescribed absolute rest and application of the jacket.

This treatment caused an amelioration of the disease and a disappearance of the gastric pains. Her parents noticed that the sneezing had diminished in frequency, but nevertheless it continued, ceasing suddenly after the application of the jacket, twenty-two days after her arrival in La Rochelle. Since that time it has never returned, and the young girl is well.

This case of prolonged sneezing, reflex hyperexcitability, without either partial anesthesia, marked hyperesthesia, or appreciable lesions of the membrane or nasal cavities seems to me very interesting but difficult of explanation.

Under the circumstances I believe it necessary to reject those cases which are symptomatic of some lesion in the

nasal fossa. The hyperemia of the mucosa was here more an effect than cause and showed a congested state caused by the efforts, a state which was clearly shown in the whole face.

Spasmodic rhinitis usually begins in May: it is characterized by an abundant nasal discharge, causing the sneezing, which appears in crisis and series, and which after a certain time disappears completely, to return the following year at the same time. In the case observed there was no discharge and the evolution was absolutely dissimilar.

In those of arthritic and especially gouty diathesis, attacks of sternutation are not rare, but they are especially predisposed to frequent hyperemic attacks which are manifested under the influence of the most pronounced causes and exaggerate the reflex sensibility of the membrane. In these cases there are paroxysms of coryza with sternutation and swelling of the mucosa, the latter sometimes causing obstruction of the nasal fossa. Often this nasal congestion is accompanied by a serous rhinorrhea.

Trousseau speaks of attacks of asthma exclusively consisting of crisis of sneezing coming on especially when the patient is exposed to either the direct rays of the sun or the cold air. My patient was certainly suffering with a sequel of the grip, but that attack, according to the attending physician had none of the characteristics of asthma; the respiration was not difficult, and auscultation of the chest revealed no abnormal sound. It was entirely reflex, of a neuropathic origin.

The hyperemic rhinitis with sneezing which is sometimes observed as reflex phenomena of genital origin appears at the catamenial periods and in men after coitus. These crisis are, in general, followed by serious sternutation and are reproduced only under the influence of the same causes. This girl had had no genital troubles, her menses were regular, and in no way modified the sneezing.

In this case, can we regard the sneezing as a manifestation of a hysteric neurosis? Authors have described sternutation of this kind, and I, myself, have seen many cases, among others, one in the service of Charcot, at the Salpêtrière; but in general, they came in paroxysms, either at the moment of a true crisis or following the hys-

teric cough or globus hystericus, and always in patients notoriously hysteric. My patient showed no anesthesia not only in general sensibility but also in the sensory apparatus; no visual disturbance, no hysterogenic point. The only neuropathic manifestation found was a certain degree of hyperesthesia of the mucous membrane. In spite of this absence of characteristic signs of this neurosis, I can see no other pathogenic lesion to which to refer the sternutation.

This patient had had influenza, and frequently this affection in young girls, especially those of a nervous diathesis, facilitates the evolution of certain neuroses, and particularly hysteria and neurasthenia. In this case, in addition to the grip, there was a predominance of gastrointestinal troubles, with gastric intolerance, insufficient alimentation and general feebleness. These causes were enough to develop in her a special nervous excitability, the first manifestation of which has been mentioned, viz., a superficial, dry, incessant, monotonous cough, lasting the entire day.

In consideration of their monotony, their stubbornness, their cessation during sleep, the absence of all nasal lesions capable of explaining their original cause, their beginning and their abrupt termination, it seems logical to consider these sneezing attacks as signs of a hysteric neurosis of which, with the cough proceeding them, they have been the first and only manifestation and whose point of origin has been a kind of hyperesthesia and temporary hyperexcitability of the respiratory mucosa.

This observation presents another curious side; I refer to the anterior flexion of the vertebral column, without bony lesion, a flexion which began with the sneezing and which was daily accentuated under its influence. It would be difficult to explain this rapid and pronounced flexion otherwise than by the efforts of repeated sneezing, continued for a long time and by the effects of a succussion of the vertebral column propagated always in the same direction.

VIII.

OPACITIES OF THE VITREOUS AND RETINAL DETACHMENT FOLLOWING ETHMOIDO- FRONTAL SINUSITIS.*

BROECKAERT,

GAUD.

Numerous monographs have appeared in the last few years which seek to establish the intimate relationship existing between the diseases of the nasal sinuses and ocular affections. Many observations have been published both by oculists and rhinologists, and it would be difficult to add anything new. Cases of frontal sinusitis complicated by severe ocular trouble without external manifestation are indeed very rare. Yet, if we should examine the condition of the sinuses in every case of unilateral affection of the deeper tissues of the eye, whose etiology appears obscure, it is certain that the number would be considerably increased.

Thus the existence of a unilateral, stationary neuritis very often leads to the diagnosis of sphenoidal sinusitis or a disease of the posterior ethmoidal cells. To explain the pathogeny, Berger (*Chirurgie du sinus Sphénoïdal*, Paris, 1890), Holmes (*Archiv. of Ophthal.* XXV, No. 4), De Lapersonne (*La Clinique Ophthalmol.*, May, 1898) and others have cited the close relationship between the sinuses and the orbit; the infection is propagated along the sheath of the optic nerve, and it is not necessary to have recourse to vascular anastomoses, whose existence has never been proven.

Likewise, sphenoidal, frontal and maxillary sinusitis have their relationship with the eyes. Since the work of Ziem, published in 1882, numerous oculo-orbital complications have been shown. Sometimes it is a slight, passing trouble; sometimes serious, and often very grave complications, such as inflammation of the orbit, paralysis of the

*Rev. hebdomadaire de Larynx, d'Otol. et de Rhin., Jan. 5, 1901.

nerves, narrowing of the visual field, atrophy of the papilla, irido-choroiditis with opacities of the vitreous body, irido-cyclitis and panophthalmitis.

It goes without saying that the affections of the anterior ethmoidal cells may also easily extend to the orbit, especially since ethmoidal sinusitis is almost always accompanied by frontal sinusitis.

I shall not linger longer on the pathogeny of this oculo-orbital trouble, which has been the object of numerous studies, notably by Berger, Ziem, Salva, Kolarovich, Fromaget, Riolacci and others.

Most of the inflammatory complications are easily explainable on the ground of the close proximity of the eye and the sinuses. It is useless to insist on the different means of infection, the sinuses being separated from the orbit only by a thin septum beyond which the inflammatory processes and the necrosis can easily pass.

The pathogenic interpretation is more difficult, more hidden in those cases of ocular affections, the so-called reflexes, which complicate the sinus affections.

It is not to be denied that the diseases of the nose and adjacent cavities may react upon the eye by the nervous route, the trigeminal, and may cause phenomena purely reflex, such as dilatation of the pupil, blepharospasm and ptosis. Even iritis, in these cases, is regarded by Fromaget and Badal as the result of a reflex, congestive trouble.

The nervous theory, vigorously upheld by Berger, is, nevertheless, unable to explain all the ocular accidents in sinusitis. With Ziem and others, recourse must be had to microbic metasasis by way of the blood vessels. How many times have we not seen ocular affections arise in the course of infectious diseases, suppuration of the middle ear, and uterine and hepatic affection? With greater reason must we admit the passage of infectious germs between the nose and eye, two organs with such intimate connections.

Be that as it may, in the observation which I wish to report, it was the ophthalmoscopic examination alone which put me on the right path and caused me to discover the existence of a fronto-ethmoidal sinusitis in a very advanced stage.

Mrs. X., aet. 62, consulted me on the 6th of last August about a considerable diminution of sight on the left side, occurring suddenly on the evening before. With that eye she could distinguish fingers at 20 centimeters. The cornea, pupil and iris retained their normal appearance. Ophthalmoscopic examination did not permit a judgment as to the exact condition of the fundus, which presented a diffuse appearance. I observed numerous mobile flocculent opacities which changed their positions with great rapidity. The diagnosis was opacities of the vitreous, but the examination revealed nothing as to the origin of these opacities.

The right eye presented no lesion at all; its visual acuteness, without correction by glasses, was equal to I.

The patient complained of certain vague pains in her head, but gave me no clue as to the cause of her affection. Her health otherwise was good, and a careful examination revealed no organic disease. No sugar nor albumin in the urine; no syphilis.

I recommended absolute quiet and prescribed iodid of potassium and mercurial inunctions.

In spite of treatment, I obtained no amelioration, but on the contrary, the transparency of the media seemed to diminish, and the vision to become worse.

Continuing my investigations, I found that the patient breathed imperfectly through the left side of the nose. By rhinoscopic examination I found that the middle meatus was obstructed by several mucous polypi and fungoid masses bathed in a creamy pus. On questioning the patient, she admitted that for two years she had blown from her nose bad smelling mucus, in varying quantities and in an intermittent fashion.

After having relieved the nasal fossa of all morbid products, I carefully observed the pus issued from the middle meatus and by means of different methods of exploration arrived at the diagnosis of ethmoido-frontal sinusitis.

As the naso-frontal canal is very large, I tried several days lavage of the sinus by that natural route. A slight amelioration of the sight having resulted and the media of the eye becoming more transparent, I was able to make a better observation as to the state of the remoter membranes.

Upon examining the eye with the ophthalmoscope I made a diagnosis of detachment of the retina in its lower portion with loss of the upper portion of the visual field.

I advised an operation for the sinusitis, but the patient wished to consider it, and did not return until September 17th. Her vision was entirely unimproved, and pressure over the frontal sinus was painful.

On the next day I performed the operation of Luc. I do not insist on the details of the operation, which was done rapidly and without incident. The sinus was relatively small, full of creamy pus and granulation. The ethmoid cells were carefully opened and scraped and a drain was placed in the sinus to the beginning of the nasal fossa.

At the end of six days, I removed the drain, and to assure myself of the perfect cure of the sinusitis I lavaged the sinus by means of an Anel's syringe whose fine cannula was introduced through a little opening in the cutaneous wound. This procedure showed me that all trace of supuration had disappeared. Next day, the external wound was healed and the bandage removed.

By rhinoscopic examination, I found, nevertheless, pus in the middle meatus, principally in the posterior portion, although the frontal sinus was manifestly cured. The electrical lamp and even puncture in the maxillary sinus made me exclude empyema of that sinus. Posterior rhinoscopy and exploration of the sphenoidal sinus showed me that the last was equally free.

Continuing my examination, I finally perceived that the pus came from an ethmoidal cell, which had escaped the action of the curette. An energetic scraping through the normal passage was soon followed by a perfect cure.

In the eye, the result has been as good as possible. The refractive media have completely cleared up, the retinal detachment is stationery, but the visual acuteness in the other part has progressively returned.

Here then is a case of opacities of the vitreous and retinal detachment in the left eye observed in a lady of 62 years, following an ethmoido-frontal sinusitis on the left side. Is there a simple coincidence or indeed a relation of cause and effect between these two affections? And if this last hypothesis is true, if the ocular affection is con-

secutive to the sinusitis, what was the route followed by the infectious agent? These two points we will try to explain.

If we review the most frequent causes of retinal detachment, we see they are all lacking here. There existed in our patient neither progressive myopia nor trouble in the general circulation. No traumatism was to blame. If the tension of the eye had been increased, which was not found, it ought to be due to a tumor of the choroid or retina, or the presence of a subretinal cysticercus.

There remains only a last supposition, the most reasonable, to regard the trouble in the vitreous and the retinal dialysis as the consequence of a localized infectious choroiditis, itself consecutive to an ethmoido-frontal sinusitis.

It is more difficult to find the path of connection between the sinusitis and the choroiditis.

We could understand it easily if a purulent collection had produced an exophthalmus and pressed strongly on the globe, or if an inflammation of the orbit had extended through the perivascular cellular tissue to the interior of the eye. But in our case there was no sign of either, and it is therefore more logical to suppose an infection by a venous route. Although the sinuses are in the immediate neighborhood of the orbit, anatomy teaches us that in this hypothesis, the pathogenic germs would pass through the large and small circulation, before arriving in the choroidal veins, or at least with von Recklinghausen that there was a persistence in these cases of the foramen of Botal through which the two auricles communicate.

This metastasis by the venous route is, then, not impossible, but it clears up only imperfectly the etiology and pathology of these ocular affections.

IX.

THE PNEUMATIC SINUSES IN THE SPHENOIDAL WINGS.*

BY BEAMAN DOUGLASS, M. D.,

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EAR HOSPITAL (THROAT DEPARTMENT).

Accessory air cells in the sphenoid bone have been described by Zuckerkandl and Hajek. The authors noticed the two sphenoidal cavities, located in the body of the sphenoid bone, and also describe in a very general manner the occasional presence of other pneumatic cavities with nasal communications, developed in the smaller wings of the sphenoid.

A special study of these sphenoidal cells has never been published; the frequency, topography, relations and size have never been exactly enough described.

These facts were called to my attention by my highly respected teacher, Prof. Dr. E. Zuckerkandl, and at his suggestion I have conducted this study of the sinuses of the sphenoidal wings with the view of classifying and describing these sinuses, to show their relation to the ethmoidal cells and to other important structures, and to determine their importance in the work of the rhinologist.

The existence of these sinuses is a matter of importance not only from an anatomic, but from a surgical standpoint. They are of great interest to the rhinologist, who is daily confronted with the problems of accessory sinus disease, and who finds no class of cases more difficult to treat satisfactorily than the very obscure lesions of the posterior ethmoid cells and the sphenoidal sinus.

The sphenoidal bone is regarded by anatomists as a modified vertebral body, presenting all the general characteris-

*From the Laryngoscope Feb., 1901.

tics possessed by a vertebra. The particular form is modified, however, so as to make it a cranial bone. The point of interest to the rhinologist is that in early child-life the nasal mucous membrane pushes a projection or bud into sphenoid which, enlarging and accompanied by resorption



CASE I. Seen from Cranial Cavity.

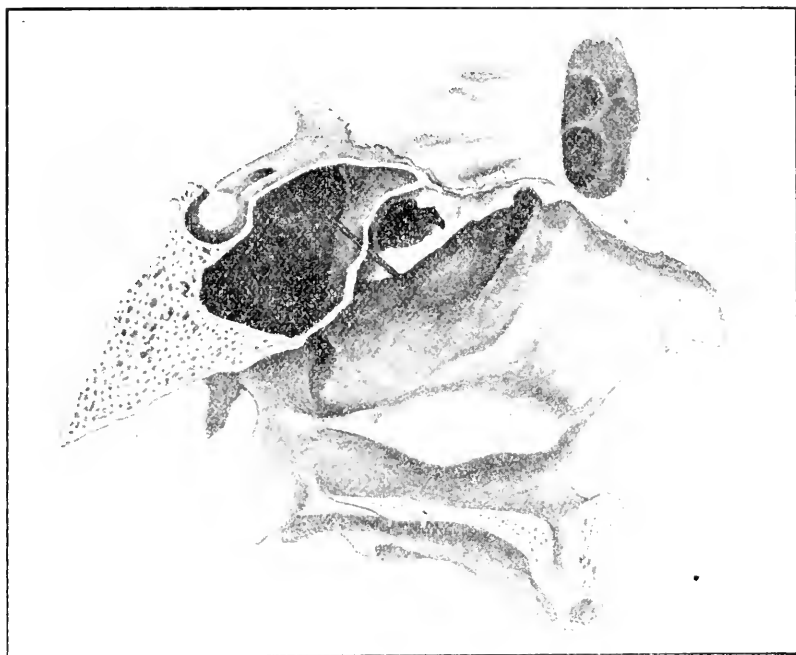
- (A) Accessory Sphenoid Cavity in Wing. (B) Sphenoidal Sinus Major—Left.
(C) Sphenoidal Sinus Major—Right.

have a large opening into the nose. The nasal opening is narrowed and the anterior wall of the sphenoidal cavity is formed by the development of the Bertini ossicles. of bone, forms two sphenoidal sinus, which at this stage

The sphenoidal cavity thus formed is of variable size and a marked variation may be seen even in opposite sinuses in the same sphenoid bone.

Sphenoidal sinuses also vary greatly as regards their development forward and upward into the small wing of the sphenoid bone.

It is evidently nature's idea that the sphenoid shall be a hollow bone with pneumatic cells extending into the



CASE III. Great Sphenoid Cavity Extending into Wing.

smaller wings as far forward as the fronto-sphenoid suture.

A small sphenoid sinus, speaking always of the adult skull, was one which measured 8 mm. long, 5 mm. wide and 10 mm. deep; another small sinus measured 15 mm long, 10 mm. wide and 10 mm. deep. A long sphenoidal cavity was found to be 39 mm. long, 19 mm. wide and 25 mm. deep. The small sinus is generally confined to the body of the bone proper, while in the larger ones this cavity is increased by the sinus occupying the body of the sphenoid, and extending

upward and forward into the small wings of the sphenoid. The space in these larger cavities is further increased by a noticeable bulging forward of the anterior wall of the cavity. the earlier cartiages of Bertini.

It is to be true that the normal sphenoid should be as pneumatic as possible then we must consider as normal those skulls where the sphenoid cavity occupies the body

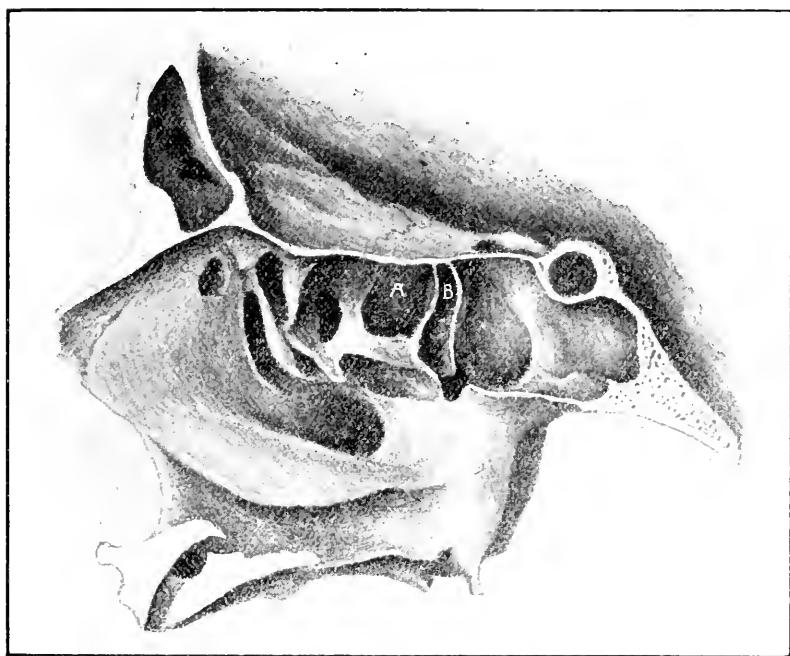


CASE IV. Sphenoidal Cavity Small, but Extends into Wing.

of the sphenoid and extended forward to the fronto-sphenoidal suture, including the pneumatic space in the small wings of the sphenoid. In those cases where the sphenoidal cavity is small and does not hollow out the bone completely, the sphenoid may contain more pneumatic room, either by the opposite sphenoid cavity developing unusually large, or other pneumatic cells may develop in the small sphenoidal wings, thus forming a true

sinus of the smaller wing, or sometimes the posterior ethmoid cell may project well backward into the sphenoidal area and occupy some space under the small sphenoidal wing. The first construction is much less common than the other two.

I have investigated the relations of the pneumatic cavities of the sphenoid in 200 cases and have found as follows:



CASE V. Two Cells in Small Sphenoid Wing.
(A) and (B) Cells in Small Wing.

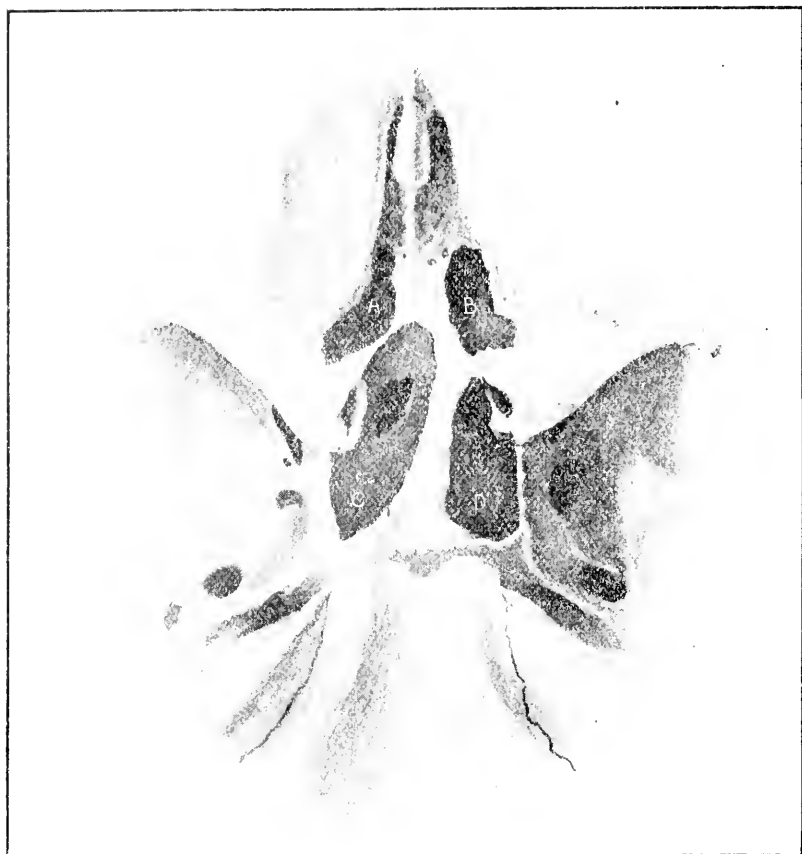
I.—The great sphenoidal cavity may occupy only the body of the sphenoid without extending into the small wing. This was found in thirty-one cases.

II.—The greater sphenoidal cavity may occupy the body of the sphenoidal, and other pneumatic cells, with a nasal communication, and lined with mucous membrane, may develop in small sphenoidal wings.

This was found in seven cases, and represents the frequency of the occurrence of a true sinus of the smaller sphenoidal wings.

III.—The great sphenoidal sinus may develop in such a way that it occupies one-half of the sphenoid body and extending into the sphenoidal wing may occupy it entirely or partially.

This condition was found 169 times.



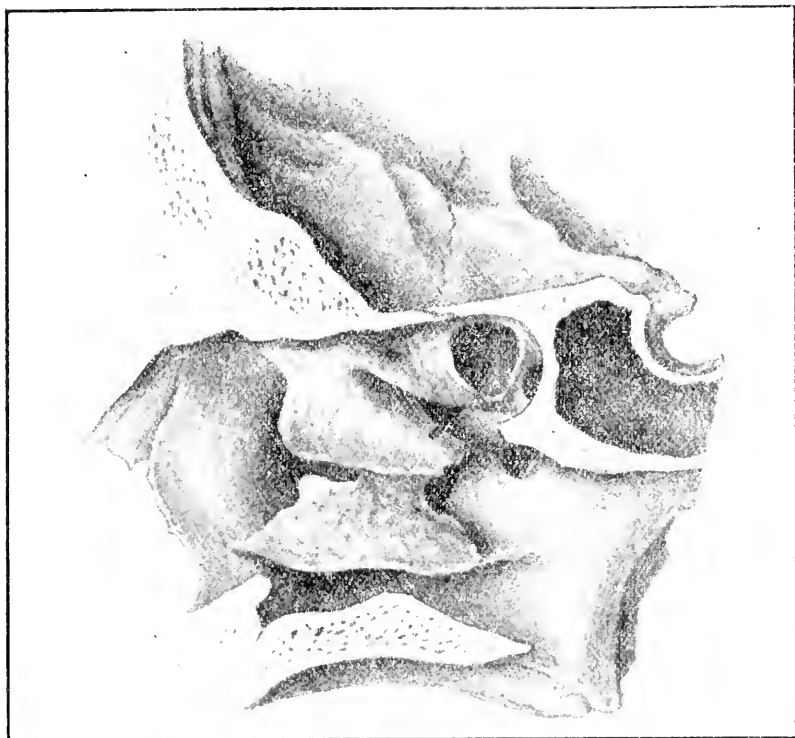
CASE VI. Posterior Ethmoid Cells Extending into Small Wings—Cranial View.

(A) Cell Extending in Small Wing. (C) Sphenoid Sinus Major.
(B) Cell Extending in Small Wing. (D) Sphenoid Sinus Major.

IV.—The great sphenoidal cavity may occupy the body and extend partly into the wing, in which case the whole or a part of the posterior ethmoidal cell may extend backward into the small wing of the sphenoid. The sinus of the small wing of the sphenoid in these cases is not developed. This condition was found forty times.

V.—The greater sphenoidal sinus develops in the body of the sphenoid. The sinus of the small wings is also present. The sinuses of the smaller wings communicated one side with the posterior cell and on the other side with the recessus sphenothmoidalis.

It seems then that in 15.5 per cent. of all cavities examined the great sphenoidal sinus did not extend to the wings of the sphenoid, but was confined entirely to the

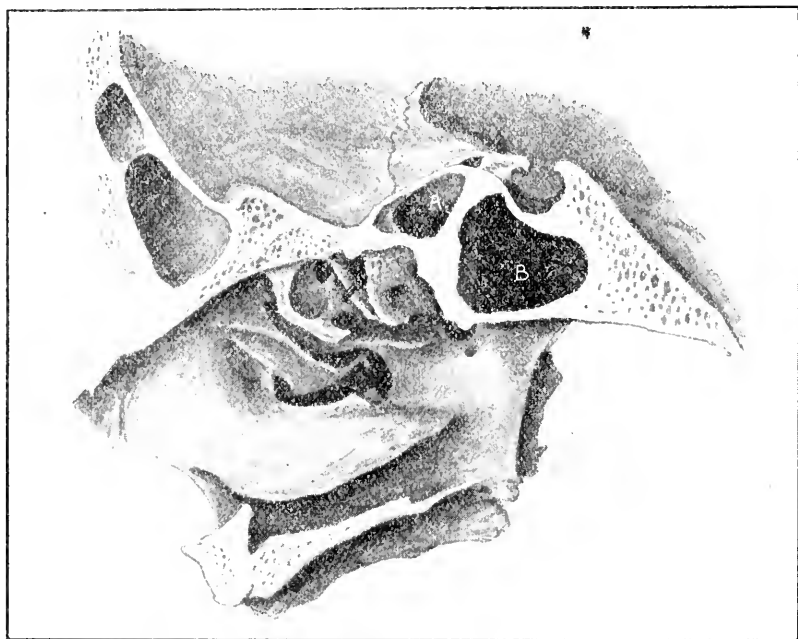


CASE VII. Small Sphenoid Wing, Forming Entire Roof for Posterior Ethmoid Cell. In all of these cases the sphenoidal wings contained pneumatic cells, made so either by the development of a true sinus of the sphenoidal wing or else by the projection backward of a posterior ethmoidal cell into the small wing.

In 3.5 per cent. of the investigated cases could be distinguished a sinus of the small wing of the sphenoid which, in all cases but one, communicated with the posterior ethmoid cell.

In 84.5 per cent. of the cases examined the great sphenoidal sinus extended into the small wings of the sphenoid. In 4.5 per cent. of the above cases the posterior ethmoid cell extended slightly backward into the region of the sphenoidal wings.

So far I have limited myself to a general description of the relations. In the following I desire to describe more in detail some examples of these sinuses of the sphenoidal wings which are worthy of attention:



CASE VIII. Large Accessory Sphenoid Sinus in Small Wing.

(A) Accessory Sinus of Sphenoid Wing. (B) Main Sphenoid Sinus.

CASE I.—A typical sinus of the sphenoidal wing.—In this case the septum between both principal sphenoidal sinuses extends forward nearly in the median line. On the right side the sinus is large, occupied the body of the sphenoid and extends forward into the small sphenoid wings. The cavity is 30 mm. long, 13 mm. wide 29 mm. deep. On the left side are two sinuses, one the principal sphenoidal sinus, 15 mm. long, 28 mm. wide, and 22 mm. high, extending only a very little into the small sphenoidal wing. Above this cavity, and fully developed

within the sphenoidal area, was a second pneumatic sinus, 12 mm. long, 6 mm. wide and 13 mm. high. This sinus had its individual communication with the recessus sphenothmoidalis. This is the only case where the cell in the same sphenoidal wing did not communicate with the posterior ethmoid cell. The nasal opening of the right

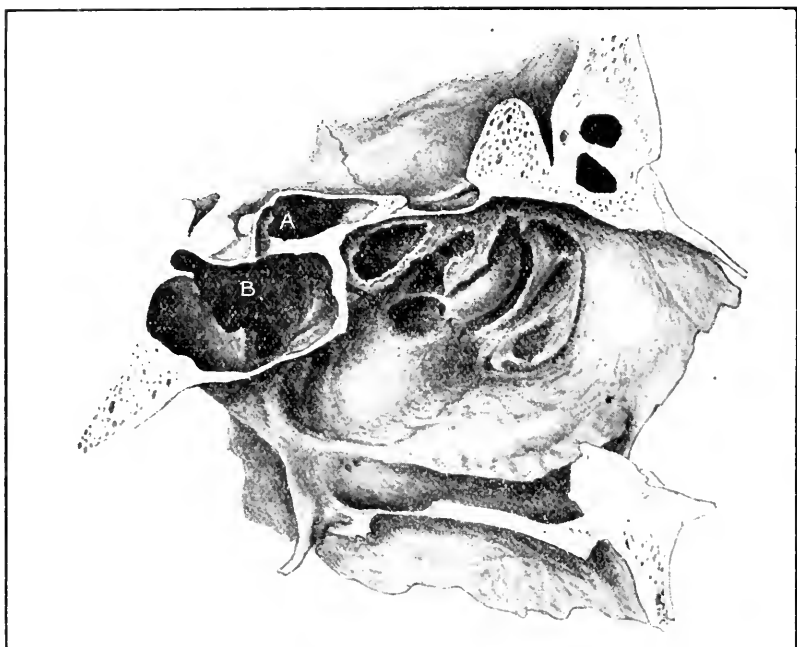


CASE IX. Left Posterior Ethmoid Cell (A) in Sphenoid Wing, seen from Cranial Cavity.

sphenoidal sinus was 29 mm. from the roof, while the left sphenoidal sinus major had a nasal opening 22 mm. and the left accessory sphenoidal sinus 21 mm. from their respective cranial walls.

CASE II.—is an example of a sinus of the small wings with its nasal communication directly into the posterior

ethmoidal cell. This accessory cavity measures 15 mm. long, 14 mm. wide and 7 mm. high, and was slightly smaller than the posterior ethmoid cell into which it drained. The opening of the great sphenoid cavity is normal. The sinus of the smaller wing is developed entirely within the small sphenoidal wing and does not extend into the ethmoid bone. The dividing wall between this sinus and the posterior ethmoid cell is exactly under



CASE X. Sinus of Small Wing Lying Higher than Posterior Ethmoid Cell.

(A) Accessory Sphenoid Sinus. (B) Main Sphenoid Sinus.

the spheno-ethmoid suture. The sinus is completely separated from the great sphenoidal sinus and equally separated from the posterior ethmoidal cell.

CASE III.—The great sphenoidal cavity occupies the body of the sphenoid and the entire small wing and extends backward to the foramen rotundum. On its roof lies the canal for the optic nerve for the distance of about 1 cm. together with the forward part of the sulcus carotidus. The wall of the sinus presses forward to the antrum of Highmore and presses the posterior wall of this antrum

forward as to form a protuberance in the maxillary antrum. The nasal part of the forward wall of the sphenoidal sinus is small; the ethmoidal part of this wall is wide and lies against the posterior ethmoidal cell.

CASE IV.—The great sphenoid sinus is small and extends forward only to the border of the sella turcica. It extends outward to the small sphenoidal wing as far as the canalis opticus. The remaining part of the small sphenoidal wings is compact.

CASE V.—The great sphenoidal sinus is roomy and reaches posterior to the anterior border of the petrous portion of the temporal bone. The great sinus extends forward as far as the canalis opticus. With the exception of this cell formation the small wing is compact. The posterior ethmoid cell is small, but is placed so far posterior that the anterior half of the canalis opticus lies in relation with this ethmoidal cell.

CASE VI.—The great sphenoidal cavity is large and extends outward and posteriorly as far as the foramen rotundum and the canalis opticus. A large posterior ethmoid cell extends into the small sphenoidal wing as far as the middle of the canalis opticus. The remaining part of the small sphenoidal wing is compact.

CASE VII.—The great sphenoid sinus is small. The posterior ethmoid cell extends backward into the small sphenoid wing as far as the canalis opticus, in such a manner that the small sphenoidal wing forms the entire roof for the posterior ethmoidal cell.

CASE VIII.—The roomy great sphenoid sinus extends to the foramen rotundum and to the sulcus carotidus. In the small sphenoidal wing a large accessory sinus is developed, which reaches from the median line, laterally, to the canalis opticus, and downward to the foramen sphenopalatinum.

This accessory sphenoid sinus, together with the posterior ethmoidal cell, occupies relatively a large space. It opens into the nose at the recessus ethmoidalis superior.

CASE IX.—Both great sphenoidal sinuses are asymmetrical. The sphenoidal septum does not lie in the median line, but extends forward so much toward the left side that it meets the lateral wall of the left sinus.

The posterior ethmoid cell of the right side reaches as

far back as the pars ethmoidalis, while the posterior ethmoid cell on the left side extends into the small wing of the sphenoid as far as the canalis opticus. Here it extends between the sphenoidal sinus and the cranial cavity as far as the forward edge of the sella turcica. If we were to make a transverse section of this skull just one centimeter in front of the sella turcica we would see on the right side a large sphenoidal sinus, but on the left side instead of one sinus one would find two—a large superior sinus, which is the posterior ethmoidal cell developed in the sphenoidal wing, and under this a smaller, the true sphenoidal sinus.

CASE X shows the same relation as Case VIII, except that the communication of the sinus of the small wing, with the posterior ethmoid cell is narrowed by the formation of a thin bony partition. It is worthy of notice that the roof of the sinus of the small wing lies higher than the roof of the posterior ethmoidal cell. One may conclude then that when the sinus of the small wing is extensive, its roof, which forms a part of the anterior cranial cavity, lies higher than the roof of the posterior ethmoidal cell so that the observer can determine, in an open skull, whether the sinus of the small wing is present or absent.

The relations of these sinuses of the small sphenoidal wing is important. Above lies the brain cavity, the optic nerve and the optic chiasm, separated from the sinus by only a paper thickness (.5 mm.) of bone. Below lie the nasal mucous membrane, and generally the anterior part of the great sphenoidal sinus with only a thin wall of bone separating the accessory from the great sphenoidal sinus. Anteriorly they lie in immediate relation with the posterior ethmoidal cell, whose posterior wall forms the anterior wall of these sinuses of the small sphenoidal wings. The most important relations are on the outer wall which is convex from above downward and over which runs the optic nerve. When this sinus is at all large it may have a very important relation with the carotid artery on its outer wall, and occasionally in the more anterior and inferior part of the outer wall a relation with the vidian nerve. The sinus wall may also form a part of the orbit wall.

The walls of the sinus are generally only .5 mm. thick

and are lined with mucous membrane and covered above with dura mater and in part below with nasal mucous membrane.

The practical bearing of these sinuses of the sphenoidal wings to the work of the rhinologist is that it is possible to have this cell diseased in either empyema of the ethmoid or sphenoidal regions and the disease will persist in this sinus even when the ethmoid cells in front are cured. If during operation the measurements are used which have been given for finding the ethmoid cells this sinus will escape the cutting forceps and curette and the diseased mucous membrane will not be moved. Likewise in operations upon the great sphenoidal sinus this accessory sinus will not be treated either in case the larger sinus is washed out with the cannula or treated surgically with the curette. An encysted empyema of this sinus of the sphenoidal wing may cause optic nerve paralysis, pass upon the carotid artery, paralyze the vidian nerve or sometimes cause orbital pressure. On the other hand unless we remember the possibility of the occurrence of this sinus the rhinologist who is operating upon the posterior ethmoid cell may reason erroneously in case his instrument enters the sinus from the posterior ethmoid cell. If his instrument suddenly perforates a thin wall when he has been working in the posterior ethmoid cell, he must believe that he is either in the brain cavity or else in the great sphenoidal cavity. Both of these suppositions are evidently incorrect. Another practical point in clinical application is danger, in operating upon these cases, of wounding the carotid artery, the optic nerve, the brain or the orbital structures. The danger of wounding the trigeminus or vidian nerves is slightest. These sinuses in common with the ethmoid cells may act as a causative agent in spreading infection to the optic nerve, brain or orbit.

Finally, the clinician may also remember that the relation of the posterior ethmoidal cells, either with the sinus of the smaller wing or with the great sphenoidal sinus, makes it possible for him to open these sinuses from the posterior ethmoid cell. In pathologic cases, where curettage and drainage of these cells and the sphenoidal sinus are necessary, the whole operation may be

completed by continuing the removal of tissue backward through the posterior ethmoidal cell into the sinus of the small wing and thence into the great sphenoidal sinus, or else directly from the posterior ethmoidal cell into the sphenoidal major.

In some cases this may be an easier operation and not more serious than the usual place of opening the great sphenoidal sinus in the vicinity of its normal opening near the septum.

ABSTRACTS FROM CURRENT OTOLOGIC, RHINO- LOGIC AND LARYNGOLOGIC LITERATURE.

I.—EAR.

Some Remarks on the Hygiene of the Ear.

EMIL AMBERG, Detroit, Mich. (*Phila. Med. Jour.*, Dec. 15, 1900). A review of the various causes which tend to produce disorders of the organ of hearing—adenoids, nasal syringing, enlarged tonsils, marriages between the very deaf, hereditary syphilis, constitutional disorders, dust, variable temperature, and the abuse of drugs are considered.

Richards.

A Normal Acoumeter.

EMIL AMBERG, Detroit. (*Jour. A. M. A.*, Jan. 5, 1901). This is intended to take the place of the Politzer acoumeter, which the author regards as inaccurate. It consists of a steel ball of a weight of one dram—which is allowed to fall from a certain distance on to a metallic block. The apparatus is placed at varying distances from the patient's ear, and the height from which the steel ball has to fall can also be regulated. The chief advantage of the apparatus is that the instruments can be made absolutely alike, thus insuring uniformity of tests when made by different persons.

Richards.

The Abortive Treatment of Acute Mastoiditis.

JAMES F. MCKERNON, New York. (*Medical News*, Aug. 25, 1900.) Wishing to test the method of attempted abortion of acute mastoiditis by heat, the author tried it in ten cases of acute inflammation of the mastoid: four in children, and six in adults. The heat was applied by having hot water passed through an ordinary Leiter coil at a temperature of 132 Fahr. and kept up continuously for 36 hours. The tenderness was found to be quite as great after removal of the hot water as before, but was immediately lessened, and in some of the cases disappeared entirely, when the ice coil was substituted for the heat. In the other four cases the hot water bag was used for 48 hours with the result that the tenderness had increased in two and lessened in two cases. Three out of

the four were then operated upon, and pus found in the mastoid antrum and cells. In all the cases the middle ear was syringed with 1-4,000 warm bichlorid and drained freely.

On the whole, the experiment is considered to have been a failure, and the author does not regard the use of heat as an abortive measure as a success. He regards cold as the only abortive agent which has anything in its favor, and in all cases of acute mastoiditis, if the middle ear is not being drained sufficiently, he first freely incises the drum, extending the incision upward and opening Shrapnell's membrane. The patient is placed in bed: an ice coil applied over the mastoid: a free purgative administered: the canal irrigated every two to three hours with a warm solution of bichlorid, 1-4,000, and the patient kept on liquid diet. The coil is left in position 24 hours, at the end of which time the tenderness is markedly diminished or entirely disappeared. If any tenderness remains the coil is kept on 12 hours longer, after which time it is removed and if its use has resulted favorably the patient makes an uninterrupted recovery. There will be a few cases in which the tenderness still remains at the end of 36 hours: if the temperature is under 100 and the middle ear draining freely, and there is no increased fullness of the posterior or superior walls of the canal, the coil is replaced once more for 12 hours, and one-half of the cases of this type will convalesce rapidly. If at the end of this time all the symptoms and physical signs remain the same or have increased, abortive treatment is to be abandoned, and the usual mastoid operation performed. In young children the coil should not be used over 36 hours. The author is absolutely opposed to the employment of moist heat on the mastoid of a person suffering from acute inflammation. If the streptococcus is found in abundance in the discharge from the canal, eight-tenths of the cases will have to be operated upon: whereas if the streptococci are absent or present in only small numbers the abortive treatment will very likely prove to be a success.

Richards.

The Eustachian Bougie.

L. B. LOCKARD, Pasadena, Cal. (*New York Med. Jour.*, Dec. 29, 1900), believes that the Eustachian bougie has

a distinct field in aural surgery, and that it is evident that the mischievous effects have been greatly magnified. A brief view of the anatomic and pathologic conditions encountered is given. Except when used as an electrode, the bougie is applicable in two conditions only: stenosis and tinnitus. The therapeutic effects are uncertain; sometimes harmful, frequently beneficial. It effects its purpose in two ways: by pressure upon contracted tissues and by reflex influences upon the auditory centre. It should be given a thorough trial in all cases that have resisted other procedures. Its use must be stopped upon the first sign of increase in the local trouble. The dangers said to attend its use are: acute otitis media, emphysema, perforation of the membrana tympani, dislocation of the ossicula, aggravation of the local trouble, faintness and fainting. If care is taken, these accidents will be of the greatest rarity.

The Ear as a Factor in Causing Systemic Disturbances.

J. L. MINOR, Memphis (*New York Med. Jour.*, Dec. 29, 1900), briefly reports five cases, which illustrates the remote or systemic effects of the disease of the ear. In case I, the patient, a woman twenty-four years old, presented the symptoms of meningitis, found to be due to suppurative otitis media. Incision of the bulging drum, Politzer's inflation and hot bichlorid douche at once relieved the condition. Case II was a child one year and a half old, suffering from acute intestinal derangement with cerebral complications, all of which were relieved by treatment of an acute otitis media on one side and a sub-acute otitis on the other. Case III was one of septic fever and earache, following measles, in a child eight years old, which were cured by the evacuation of pus in the middle ear and douching with bichlorid. Case IV was one of continued high fever in a child of fourteen months, which was unaccounted for until otitis media purulenta was discovered and treated, with relief. The last case was one of recurrent attacks of bilious fever, due to retained pus in and inflammation of the middle ear. Treatment of the middle ear was followed by cessation of the fever.

Case of Thrombophlebitis of the Left Sigmoid Sinus.

C. KOLLER, New York (*N. Y. Med. Rec.*, Jan. 19, 1901), reports a case of the left sigmoid sinus masking a

latent brain abscess in the left temperosphenoidal lobe, both arising from chronic otitis media. The patient was a girl eight years old. The fact of the case, and the history as far as it could be established, seemed to indicate that the patient had been suffering from chronic otitis, with occasional purulent discharge. No perforation was found when she applied at the dispensary, and the tympanic membrane showed hardly any changes. but this is a circumstance occasionally met with in very extensive mastoid diseases. The symptoms from which she suffered since the onset of her last illness, five days earlier, were those of mastoid disease with infective sinus phlebitis, systemic infection. At the first step, the internal jugular was ligated. Thereupon the opening into the antrum was performed in the usual manner. The antrum contained inspissated pus and granulations, which were removed. Then the sinus was freely exposed. No pus or granulations were found upon the sinus; its outer wall, of greenish-white color, offered to the finger more than the usual resistance. Chocolate-colored pus of very offensive odor was drawn off by aspiration. Two inches of the jugular vein were excised. The sinus was incised lengthwise, and a grayish-brown disintegrated thrombus removed, and the sinus was curetted without restoring circulation. Further curetting led to bleeding, showing that the circulation had been restored, and further procedures were postponed. On the sixth day the pulse was noted to be irregular, a fact which was remarked frequently. Toward the end of the third week the general condition of the patient seemed less satisfactory and further examination established the existence of an abscess in the tempero-sphenoidal lobe, which had not before given symptoms. On the twentieth day after the first operation the patient was again operated upon, and in the dura, at the site tegmen tympani, which had been removed, a small round opening was exposed. On enlarging this, greenish pus was evacuated, the abscess cavity carefully rinsed and tube introduced. On the twenty second day the patient died, the temperature reaching 107.2. A complete bacteriologic and autopsy are given. The diagnosis at autopsy was shown to be: Caries of the pyramid, thrombosis of the lower part of the

left lateral sinus, old abscess in the left temporo-sphenoidal lobe, communicating with the antrum through a fistula in the tegmen tympani, purulent meningitis, secondary to perforation of the abscess into the lateral ventricle.

Removal of Foreign Bodies from the Auditory Canal.

G. C. SAVAGE, Nashville (*Medicine*, February, 1901). The writer insists upon the great importance of first trying to remove all foreign bodies, wax included, by syringing the auditory canal with warm water before the slightest attempt is made with an instrument of any kind. By the former method nearly every foreign body may be removed whereas by the use of an instrument it is usually only pushed closer to the drum membrane. For impacted cerumen he prefers instillations of dioxid of hydrogen to soften the impaction, and then uses the syringe.

Prevention of Intracranial and Intravenous Complications in Suppurative Diseases of the ear.

J. H. WOODWARD, New York (*Jour. A. M. A.*, Feb. 2, 1901). Every one who has critically examined the chambers of the ear in the various stages of chronic purulent otitis media must be convinced of the doubtful probability that advanced disease may be permanently controlled by treatment through the internal auditory canal, and further of the eminent desirability of a permanent eradication of infective inflammation. Although in certain recognizable cases simple methods will succeed, it is not good judgment to favor a prolonged trial of any method of treatment that is not producing palpable results. Seven indications are given for the radical mastoid operation, the object of which is not to drain the middle ear, but to remove the disease. (1) Bulging of Shrapnell's membrane with swelling of the inner extremity of the auditory canal; incision of the drum, which should be made in every case, is hardly sufficient to evacuate the thick tenacious pus. (2) Persistent tenderness over the mastoid process. (3) Swelling of the soft parts over the mastoid process. Though some few cases may be benefitted by simple incision of the affected soft parts, the radical operation sooner or later is demanded. (4) Granulations and fistula in the external auditory canal, as it indicates caries in the walls of the middle ear. (5) Persistent and relapsing fistula

behind the auricle, as it also points to caries in the walls of the tympanum, antrum, and mastoid cells. (6) Persistent, and especially offensive, otorrhea. Failure to cure such cases by the radical operation will be rarely observed. This operation was performed upon two of the writer's patients with persistent otorrhea, one being insane and the other suffering from such "confusion of ideas" so as to greatly annoy her. Not only was the local ear condition completely cured by the operation, but a moral psychical condition restored in each case. (7) Sudden marked diminution or absolute cessation of a chronic otorrhea. This he regarded as a signal that the infection has attacked or is about to attack a vulnerable part.

Some Observations in Mastoid Operations.

A. W. CALHOUN, Atlanta Ga. (*Journal of the A. M. A.*, Feb. 23, 1901), presents the following conclusions, based upon a large number of mastoid operations. (1) The infrequency of mastoid disease, as compared with the large number of cases of suppurative otitis media; (2) the mild type of the disease, and the freedom from cerebral and other dangerous complications in cases occurring in a Southern climate; (3) the comparative exemption of the negro race not only as regards middle ear disease, but also and to a greater degree from mastoid complications; (4) mastoid disease may be present without causing outward symptoms, as severe pain, fever, etc., and moreover, it may be present without apparent middle ear involvement; (5) all cases do not require the radical operation, many yielding readily to milder measures.

Three Cases Illustrating Cerebral Complications of Otitis Media Suppurativa.

CHARLES W. RICHARDSON, Washington, D. C. (*Journal of the A. M. A.*, Feb. 23, 1901), bases his views upon a large number of mastoid operations and three fatal cases of complications occurring in the course of suppurative otitis media are reported. The first case, a man 61 years of age, had had for many years a suppurative otitis media. For a period of two weeks before operation he had had chills, followed by fever, daily, and pronounced sweating. Slight pain on deep pressure over the mastoid was experienced, and intense pain on slight pressure over the

emissary vein. The mastoid cells were opened and the sinus exposed. Its contents were found to be gangrenous and the cavity was thoroughly curetted. On opening the jugular in the neck, it was found to be collapsed and the contained clot had undergone organization. The vessel was removed. Twenty-six hours later the patient died from sepsis. In the second case, a great, boggy, fluctuating mass was found, extending from near the vertex of the skull to the tip of the mastoid. On opening the latter, its whole cellular structure was found to be completely destroyed. The patient improved for five days, when a large abscess formed in the neck and was opened. After this the condition remained good for two weeks, when induration of the temporal region was noticed. Since osteomyelitis was evident, the whole outer table of the squamous and lower half of the parietal bones were removed. The patient improved for ten days, when an abscess in the occipital region developed and was incised. After an interval of rest of nine days, the sigmoid sinus became thrombosed, and was opened and curetted. After this last attack the patient grew steadily worse, dying fifteen days later of meningitis. The third case was one of cerebral abscess, an inch in diameter, located on the mesial side of the uncinate convolution of the temporo-sphenoidal lobe. Frequent explorations with the probe and aspirating needle failed to locate the abscess cavity. Early diagnosis and prompt intervention is the keynote to a successful result, but this is often difficult, as no group of symptoms would lead us to suspect the trouble in the formative stage of infection. Ligation and excision of the jugular is recommended in thrombosis of the sinus. The early and most characteristic signs of cerebral abscess are those of alteration of the general condition of the patient, becoming, as he does anxious, irritable, morose or semi-hysterical. Aphasia, especially in cases of left sided otitis in right-handed persons, is a symptom of much importance.

Suppurative Tympano-Mastoiditis in Children.

HERMAN KNAPP, New York (*Jour. of the A. M. A.*, Feb. 23, 1901), is convinced of the truth of the old statement that he who has no hereditary tendency to deafness, and passes through all the diseases of childhood without ear trouble,

is almost immune in after life from the same. Thirty cases of mastoid operations are reported. Of these 41 per cent. occurred in infants under 2 years, the remaining 59 per cent. between the ages of 2 and 8 years. The cause of the frequency of middle ear disease in children lies in its anatomic condition, and that of the adjacent nasopharynx, at this early age; the ring of adenoid tissue in the upper pharynx, and the shortness and comparatively large caliber of the Eustachian tube, readily permitting infection of the middle ear.

Rupture of the Membrana Tympani From Indirect Violence.

RICHMOND MCKENNA, Memphis (*Jour. A. M. A.* March 9, 1901). A single case is reported of a patient having suffered a rupture of the membrane tympani as a result of a blow upon the head. Expectoration of blood, and a high temperature following the injury might have led to the wrong diagnosis of fracture of the base. The most unusual and peculiar feature presented was that the rupture occurred in transverse relationship to the fibers of the drum membrane, and was perfectly straight. Permanent deafness followed the injury, evidently due to concussion of the labyrinth.

Suppurative Otitis Media Followed by Acute General Meningitis.

MOURE and LAFARELLE, Bourdeaux (*Rev. Hebdom. de Laryng., d'Otol. et de Rhinol.*, January 1, 1901), report a case of otitis media suppurative which was followed by a mastoiditis. Notwithstanding a trepanation the patient died one month later of an acute general meningitis. The autopsy was as follows: The lesions found were those of acute general meningitis, a little more pronounced over the frontal lobes, but without the least predominance on the left side, in the region of the temporal bone. Under the pia mater the sulci which separated the convolutions were full of pus, bacteriologic examination of which (microscopic and cultural) showed the presence of strepto- and staphylococci. The sinus contained blood, and sections of the cerebrum and cerebellum showed no deep lesions.

These results, however, did not explain the meningitis; and an attempt was made to find the cause.

The temporal having almost entirely been removed by the saw it was found that the cut along the posterior bor-

der of the petrous portion had opened a purulent cavity enclosed in the thick mastoid portion of the bone almost at its posterior end. This cavity was situated exactly above a plane passing horizontally through the superior pole of the opening of the external auditory canal and one centimeter behind, a vertical plane passing through the summit of the mastoid; it was, therefore, above and behind the operation wound, with which a remarkable fact, it in no way communicated, but from which it was separated by a wall of compact tissue, eburnated and healthy, a half centimeter thickness. To the inner side, however, there was no bony barrier, but the lateral sinus, doubled by a sort of pyogenic membrane, formed the internal wall of the cavity; in spite of dangerous contact it was entirely healthy.

There was, therefore, an anomaly, the purulent focus being developed in an aberrant mastoid cell, rather diploic than pneumatic, whose thin inner osseous wall was used by the inflammatory process or perhaps was congenitally lacking. The presence of a wall of healthy bone between this cell and the primitive focus, compels us to admit that the infection is accomplished not by continuity but by transportation of germs to a distance by the hematic or lymphatic routes.

A picture of the bone is reproduced showing the parts described.

Inflammatory Tumors of the Ear.

P. JEADELIZE, Nance (*Rev. Hebdomadaire de Laryngologie, d'Otologie, et de Rhinologie*, January 12, 1901), contributes an article on the histologic structure of inflammatory tumors of the ear, with special reference to inflammatory tumors of the polypoid type. By the name of polyp of the ear is meant a pedicled tumor with origin from the wall of the tympanum itself or the external auditory canal. The term has, however, been extended to all benign pedicled tumors, among which the most numerous are those of purely inflammatory origin. It has been thought that these tumors are sarcomata, but more recent investigation has disproved the idea. Numerous classifications have been made of inflammatory tumors of the ear, but the greater number of those forms included under this head are really products of granulation tissue, or "germinative tissue," and the only true inflammatory tumor is the granuloma, which

term is preferable to mucous or cellular polyp because it brings out the inflammatory idea. They are composed, in brief, of embryonal cells, a greater or less infiltration of white cells and a capillary vascularization by means of new formed blood vessels.

The epithelium, which is sometimes lacking, when present is of different kinds, depending on its place of origin, i. e., cylindrical, ciliated cylindrical, stratified cylindrical—in which case the uppermost layers have a horizontal direction—and pavement. The latter is the most interesting, presenting at times all the features of the dermis. There is sometimes an infiltration of leucocytes and giant cells in the inter-cellular spaces. Crystal of cholesterin are often found, and when not present the cause may be the fixation fluid, i. e., alcohol. In the same polyp different epithelial may coexist, in all probability due to the transformation of one kind into the other. The chorion forms the main body of the polyp, having undergone an inflammatory proliferation. The question of glands is a debated one, some authors asserting the presence of mucous and sudariparous glands, others contending that these structures are simply in vague irritations of the epithelium and not true secreting glands. There is no question, however, of the existence of lymphatic follicles.

Under the head of cysts he describes two varieties, (1) intra-epithelial having a wall of epithelium and containing mucus and mononuclear leucocytes; (2) cysts with connective tissue walls which are variable in shape, the walls are covered with one or all of the different forms of epithelium, the contents are mucous debris, cholesterin and cells of different forms, e. g., leucocytes, pus, epithelial, and especially noteworthy, giant cells. These latter are of two kinds, (1) giant cells with multiple prolongations, of a leucocytic origin; (2) giant cells with vibratory cilia. After discussing the various theories as to the origin of cysts, he takes up the vessels of the polyps, which are very richly supplied, sometimes even forming almost angiomas. In regard to the granulation tissue, properly so called, he calls especial attention to four points, which are: (1) Infectious nodules or masses of leucocyte at a point of infection which has healed to a greater or less degree; (2) fixed giant cells about whose origin there is

some dispute; (3) bodies of Niernack, bright, round bodies; and (4) the corpuscles of Russell.

There are three forms in which there is benign transformation of granulation tumors takes place, (a) fibrous, (b) cartilaginous, bony and calcification of the polyp, and (c) myxomatous.

That malignant transformation of granulation tumors may occur is, theoretically, very possible, but cases are exceedingly rare.

The Use of Suprarenal Extract in Diseases of the Middle Ear.

LEWIS S. SOMERS, Philadelphia (*Therapeutic Gazette*, December, 1900), speaks very highly of suprarenal extract for local application in acute myringitis, acute otitis media, chronic suppuration of the attic (provided the perforation be in the lower portion of the drum and not in Schrapnell's membranes), granulations in the auditory canal or middle ear, and excoriations of the cranial and auricle resulting from middle ear discharges. In true eczema, like other aqueous solutions, it proved of no value. Its application by spraying or directly to the mouth of the Eustachian tubes has been of signal service. It reduces turgescence, thereby promoting drainage, improves local nutritive tone, reduces secretion, and shrinks granulations. Its activity is manifested only upon mucous surfaces or those deprived of epithelium. Its use is perfectly compatible with that of other remedies, and must be preceded in all cases of discharge by thorough cleansing. Instillations of five drops of the author's solution may be made by the patient twice daily or hourly, according to the indications. The drug has also a decided field in aiding anesthesia and preventing bleeding when incisions are made into the tympanic membrane. The author's experience is that secondary hemorrhage is not favored by its use. He recommends a solution which has never produced any outward results, does not putrefy or deteriorate, and possesses antiseptic as well as anesthetic properties. The formula is:

R ^y	Suprarenal	gr. xx.
	Carbolic acid	gr. ij.
	Eucaïn hydrochlorate b.....	gr. v.
	Distilled water.....	5ij.

Macerate for ten minutes; filter.

Spongyfying the Labyrinth.

J. HOLINGER, Chicago (*Laryngoscope*, January, 1901), concludes:

First.—Sclerosis and similar words to indicate this disease of the ear are without meaning, pathologically or clinically.

Second.—Spongyfying of the labyrinth is a well-defined disease, clinically and pathologically.

Third.—The diagnosis can be made in the living in a comparatively early way, from the history and trio of functional tests:

(a) Short or negative Rinne.

(b) Increase in hearing of low sounds by bone conduction.

(c) A large part, one to several octaves, of the lowest sounds cannot be heard by air conduction.

Fourth.—The prognosis as to life is good; as to recovery of hearing bad.

Fifth.—The treatment must be applied very judiciously. We can judge of and compare the effect of a treatment in a given disease only when we are able to make an absolute diagnosis of the disease. Patients who have been treated from the start of the disease are often, after years, in a worse condition as to their hearing than others who have been left alone.

II.—NOSE AND NASO-PHARYNX.**Nasopharyngeal Mycosis, with a Report of a Case.**

P. S. DONNELLAN, Philadelphia. (*Philadelphia Medical Journal*, Dec. 8, 1900.) Patient was a male, 42 years of age, of good health. "The faucial tonsils on each side, part of the postpharyngeal wall, and both surfaces of the uvula were covered with a grayish-white membrane, somewhat elevated from the mucosa, and closely adherent to it, leaving a bleeding surface when removed by the forceps."

Clinically the case resembled nasopharyngeal diphtheria, but there was no albumin in the urine, and no Klebs-Löffler bacillis. Microscopically the membrane showed mycelial rods or threads of bacillus leptothrix arranged in.

parallel rows surrounded by masses of granular material.

Patient was treated by removing portions of the membrane with Grünwald's punch-forceps, and the underlying mucosa mopped with full strength hydrogen dioxid. Membrane gradually disappeared.

The disease is comparatively rare, non-contagious, and pursues a prolonged course. It is closely similar in appearance to diphtheria, rendering it necessary that an accurate diagnosis be made in each individual case, since there is danger that it may be diagnosed as diphtheria, even although there is no constitutional disturbances and no albuminuria, since cases of mild diphtheria not infrequently occur. The course of the disease is usually prolonged and is favored by disordered digestion and carious teeth. The treatment consists of the removal of small portions of the growth at repeated sittings by cutting forceps or the galvanocautery.

Richards.

The Purulent Rhinitis of Children as a Source of Infection in Cervical Adenitis.

CAROLUS M. COBB, Boston. (*Boston Med. and Surg. Jour.*, Jan. 10, 1901.) The author thinks that most cases of cervical adenitis have their origin in purulent inflammation of the upper air tract; either in the shape of adenoids, enlarged tonsils, or from purulent rhinitis occurring independently of these, or even subsequent to the operation for adenoids and enlarged tonsils. He cites a case in which, after thorough operation for the removal of enlarged tonsils and adenoids, a purulent discharge from the nose and a cervical adenitis followed an acute coryza. He thinks that the source of the infection should be sought in these cases, and that the physician should not be content simply to remove the enlarged glands. He regards the assigning of tuberculosis or scrofula or asthmatic diathesis as the causative factor in these cases as meaningless statements. He is of the opinion that most cases of purulent rhinitis are secondary to disease of the accessory sinuses of the nose; and makes a plea that in all cases of enlarged glands of the neck in children, a search be made for the cause.

Richards.

The Treatment of Adenoid Vegetations of the Naso-Pharynx.

OTTO T. FREER, Chicago. (*Jour. of the A. M. A.*, Nov. 24, 1900). No treatment is effective except thorough

operation. The author combats the idea that the nasopharynx is not especially sensitive, and the operation without anesthesia is vigorously opposed on account of the intense fright and pain to the child, and the impossibility of doing a thorough or satisfactory operation without the relaxation which accompanies anesthesia; even in those cases of older children in which cocain anesthesia can be used, the operation is apt to be incomplete, haphazard and imperfect. A thorough operation is advocated, and the question of anesthesia discussed at length, with the conclusion that the Schleich mixture is not to be recommended; that nitrous oxid does not give a sufficiently long anesthesia; that chloroform is unsafe and unaccountable, numerous deaths and many frights being reported from its use, and although ether has its objections, it is to be preferred to any other in the author's opinion.

For position, he prefers one in which the patient lies on the side and chest close to the edge of the table.

Various instruments are described, and the preference given to the Löwenberg forceps, two sizes of which are used on each case, and after these, the Ingal's nasal bone forceps are used to remove any masses that may remain on the posterior wall. The author regards the more generally used Gottstein knife as failing frequently to remove the whole of the growth, leaving deposits on the posterior and lateral pharyngeal walls, and having some liability of wounding the Eustachian prominences, and being too large an instrument to apply itself to the nooks and recesses of the unequal surfaces of the nasopharynx.

"No operation for adenoid vegetation is complete without this last stage of the performance. Though the finger pressed into the choanae may at first discover no growths whatever, as soon as the bone forceps are pushed through the nostrils against it, these polypoid masses are readily felt." The finger is used to be sure that the tissue is all removed. No after treatment is necessary. *Richards.*

Syphilis of the Nasopharynx.

DR. F. FISCHENICH, Wiesbaden, (*Fraenkel's Archiv.*, XI. 3, 423). Syphilis of the nasopharynx in its anatomic and clinical course has not received sufficient attention in any of the text-books. In 235 cases of syphilis of the ear, nose and throat which the author observed in 15 years,

the nose was involved 82 times, and in these the nasopharyngeal cavity was diseased 49 times. The nasopharynx was affected alone 14 times; i. e., at the examination syphilitic disease could be discovered in no other organ. In the other 35 cases, specific disease was demonstrated elsewhere, too. The second and third stage, and hereditary syphilis were seen. Primary sores in the nasopharynx have been diagnosticated, first in France. They can be traced with certainty, nearly always to infection by means of instrument or of the finger when palpating. The author saw secondary manifestations consisting of mucous patches on the posterior surface of the soft palate and in the vault of the naso-pharynx directly above the choanae. By far the most serious and important diseases are those of the third stage. The disease appears most frequently in the first 6 years after the infection; the longest interval between infection and localization in the nasopharynx was 22 years; the shortest, 2-3 months. The picture of the later forms of syphilis in the nasopharynx does not vary greatly. The original focus is always a gummatous infiltration of the mucous membrane which, however, is rarely observed, as it causes no symptoms and may run a latent course. In most cases ulcerations of various sizes are found; they may extent over the whole vault into the tubes and choanae, and downward over the pharyngeal mucous membrane. The whole space is then converted into a cavity filled with dirty, grayish, blood-stained masses of pus.

The vault of the pharynx, at the location of the pharyngeal bursa, is a favorite site of the isolated ulcer. On probing, exposed bone can be felt, especially at the roof. Sequestration is more rare, however, than in the nose. Patients complain of pain in the throat of long duration.

The pain in swallowing seems to be much greater than with ulcers of the pharynx or larynx. Headache is pathognomonic; the pain is described as very severe, of a boring and sticking character, and as present in the occipital region. At the same time, the patients complain of great pressure in the whole head and of the feeling of numbness or obtuseness. Earache is usually transmitted. In one of the author's cases, an ulcer had spread from the vault into the left tube and produced an acute otitis media. The

enormous secretion is in a certain sense pathognomonic. The author was induced by it to open into the accessory sinuses of the nose, but usually without benefit. The secretion ceases gradually as the ulcers are cleansed and cured. It is apt to affect the stomach disastrously. The cachectic appearance of such patients is most striking, but they recuperate most rapidly when treated energetically. Fetor is sometimes present, especially when the nose is also involved. The use of the post-rhinoscopic mirror cannot be urged enough, as ulcerations may persist in the nasopharynx when all other symptoms have yielded to antisyphilitic treatment. Stress must be laid on the necessity of combining general syphilitic with energetic and rational topical treatment. In extensive ulcerations, general treatment only cannot effect a complete cure without simultaneous topical application. Large ulcerations, were seen immediately after the use of 20 to 40 inunctions and of potassic iodid in large doses. The ulcers showed rather a tendency to spread than to heal. The abundant secretion leads to the formation of crusts which keep up the morbid process. The author insists on frequent and thorough cleansing, best by means of a nasopharyngeal syringe with small openings, introduced through the mouth. The middle-ear never became affected as a result of the sometimes forcible irrigating of the many remedies used. Especially when great pain is present, insufflations of equal parts of calomel and orthoform as well as applications of iodid-potassic iodid-glycerin solutions were the most serviceable. Strong caustics as well as the sharp spoon have been abandoned. Only when granulation tissue keeps up the formation of secretion, it must be removed. In about a dozen cases of syphilis, which had run its course, where the whole interior of the nose was destroyed and the mucous membrane full of cicatricial tissue, the author found that topical treatment had been either neglected altogether or had been insufficient. On the other hand, even in his very worst cases, there never were any perforations of any extent nor any adhesions as long as he had opportunity to observe them. The brief, but often interesting and instructive, histories of 49 cases are appended.

Morgenthau.

Tuberculosis of the Maxillary and Sphenoid Sinuses with Fatal Issue.

DR. RUDOLPH PANSE, Dresden. (*Fraenkel's Archiv.*, Vol. XI, 3, 478). A girl of sixteen, apparently quite healthy, complained (Jan. 24, 1900) of nasal polypi which had been removed several times. The nose was cleared, and nitrate of silver 1 to sugar of milk 10 insufflated to destroy the base. Without having before referred to eye symptoms, the patient was suddenly (Feb. 21) led to the clinic by her mother, with the statement that she was totally blind. Presuming that the optic nerve was affected through disease of the frontal, ethmoid, or sphenoid sinuses, both frontal sinuses were at once opened. The mucous membrane was very red and peeled from the bone, but there was no pus in the cavities. In order to reach the ethmoid labyrinth, the nasal bones were exposed and found to show sharply eroded defects with rather firm granulations. As the disease was not an ordinary empyema and the extended disease of the bone seemed to be specific, the operation was interrupted. Neuroretinitis of both eyes was seen on ophthalmoscopy (Mar. 10). The antisyphilitic treatment had not the least result. Microscopic examinations of the granulations were negative. There were slight elevations of temperature in the evening. The patient was troubled only by frequent headaches. The wound would not close, new granulations formed in abundance. At last, giant cells were discovered. The author then (May 2nd) attempted to remove all of the diseased area. The nose was split; the nasal bones taken out; maxillary, frontal and ethmoid sinuses, cleared of the enormous masses of tuberculous granulations; ethmoid bone, sphenoid bone, anterior wall and septum were removed, so that the frontal lobe of the brain was freely exposed. Caseous and granulation masses extended far up between dura and skull, and were scraped away. The tip of the nose was sewed, and tampons introduced from the forehead. The immediate result was freedom from fever for 3 days; general condition was fair. Light and shadow could again be distinguished. Soon, however, great elevations of temperature set in, and finally intolerable headache. The temperature rose gradually to 40 degrees by the beginning of June; strength grew

less; in the last days, some albumin in the urine, much vomiting, hyperesthesia of the skin; patellar reflexes increased on both sides; abdomen, retracted; no stiffness of neck. The patient died in coma (June 11).

Autopsy. Tuberculosis of the ethmoid bone and anterior sphenoid bone; roof of sphenoid sinus, intact; optic nerve, disintegrated; roof of orbit, carious on both sides and covered with caseous masses; large defect in ethmoid bone and neighborhood; local meningitis; hydrocephalus internus; moderate tuberculosis of lymphatic glands of neck and bronchi; old focus in apex of right lung; infectious splenic tumor; no tuberculosis of kidneys, etc.

Morgenthau.

On Malignant Tumors of the Accessory Cavities of the Nose.

RICHARD SCHWENN, Breslau. (*Fraenkel's Arch.*, XI, 3, 351.) Ten cases are reported from the surgical, ophthalmologic, medical, and oto-laryngologic clinics of the University of Breslau. Only careful consideration of the symptoms will enable one to judge more accurately of the extent and seat of such growths. They will even influence the choice of the method of operation. If, for instance, the symptoms point to the original seat in the malignant disease being in the posterior ethmoid cells, still it will be necessary to remove the upper jaw, in order to obtain a clear view of the field. When brain pressure, due to the invasion of the cranial cavity by a tumor, sets in, a radical operation is generally considered hopeless; especially as it is never known how far the field of operation has been infected from without, and meningitis may immediately follow surgical intervention. Perforation into the interior of the skull may, sometimes, even before symptoms of brain pressure appear, be diagnosticated upon careful examination of the several symptoms; and a useless and dangerous operation may thus be avoided.

Of the general symptoms common to all malignant nasal growths, stress must be laid on the tendency to degeneration, which very often leads to the formation of pus in the accessory cavities as a result of infection. In seven of the author's cases pus was found. The fetor from the disintegrating tumor, often quite specific, aids in the diagnosis now and then.

The irresistible spreading is evidenced by displacing and

destroying the bony portions of the nose and the surrounding area. The nose appears broadened. The tumors are very apt to perforate in the ethmoid cells. And as remnants of the growth are very likely to remain behind their anfractuositities, the exceedingly marked tendency to recurrence can be explained. In the more benignant growths, recurrence sets in relatively late, even after incomplete operations; in the more malignant ones, recurrence or autopsy showed that remnants were left, or it appeared even at the time of operation that complete removal was impossible.

Hemorrhages are significant, especially in sarcoma of the nose. Pains occur in two forms; either as periodical attacks of neuralgia, apparently when the tumor presses on a larger nerve trunk; or especially often the tumors of the maxillary antrum, continuous and severe, due, probably, to pressure on the walls of the cavity or combinations of both kinds may occur.

In addition to these general symptoms, there are special ones of importance in localizing the tumor. The ten cases are divided into four groups, according to their probable original focus. The first group is formed by tumors in the region of the maxillary antrum. It is of great interest to differentiate them from empyema of the sinus. In both of the author's cases, the tumor was accompanied by empyema and perforation to the external surface. Perforation into the cheek or the orbit could have been ascribed to the empyema alone, as is sometimes the case. Multiple perforations are hardly to be found in common empyema, as the casual pressure ceases when the pus has found an exit. For the same reason, an empyema does not cause perforation when the pus has been well removed by irrigation. An actively invading tumor, however, can perforate in different places in succession. Multiple perforations may be, therefore, looked upon as an indication of a malignant tumor. Most important in diagnosis is the often enormous, pain which may be considered characteristic if simple retention of pus by closure of the ostium can be excluded.

The presence of pus may be misleading. The possibility of the existence of a malignant tumor must not be forgotten, even in apparently acute suppuration when prolonged,

even if the pain is not complained of, which happens when the tumor does not yet fill up the cavity. A further indication is the failure of irrigations to relieve the feeling of pressure, to diminish the pus and to do away with the odor, and to improve the cachexia present in many such cases.

The next groups are interesting, on account of the ocular symptoms, which are, occasionally, the very first to be noticed. The second group is formed by tumors originating in the interior ethmoid cells. In contradistinction to growths of the posterior ethmoid cells, the naso-pharyngeal cavity remains free. In all cases, but one side of the nose was occluded, so that there was but little obstruction to nasal breathing. A second characteristic symptom is the involvement of the septum, which was found in all three cases. In more advanced cases, there is undefined headache. Perhaps this is in connection with tendency of these tumors to crawl toward the base of the skull and to produce the symptoms of a brain tumor, after destruction of the bone, without defined local symptoms. Psychological disturbances were present once, in addition. Perforation into the orbit through the thin partition is to be expected. It is easy to recognize, from disturbance of motility, sensibility, and vision, when muscles or nerves of the orbit are attacked by the tumor or affected by pressure. A differential diagnosis between the tumor and orbital phlegma from other causes must be made. This is all the more difficult when no tumor is to be seen in the nose. At first a tumor of this region may remain hidden between the turbinal, which would have to be removed to allow a diagnosis to be made. It surely happens very rarely that orbital phlegmon does not cause some functional disturbance of the eye, as did occur when one tumor perforated into the orbit. When the eye is displaced, it will be to one side or, at the same time, either upward or downward. The lacrymal apparatus will also be implicated. According to the anatomy of the orbital cavity, perforation for the anterior ethmoid cells would result, first, in affections of the superior oblique muscles, and of the supra- and infratrochlear nerves; later, of the internal rectus muscle.

Perforation into the orbit is still more apt to occur with tumor of the third group, starting from the posterior

ethmoid cells. The eyeball protruded in two cases. Impairment of motion of the eyeball to the right was probably due to affection of the abducent nerve; the complete amaurosis, to involvement of the optic nerve. The naso-pharyngeal cavity invaded early, leading to occlusion of both nostrils.

The fourth group, tumor of the sphenoid sinus, at first causes but few symptoms, which later on are of great variety, especially caused by the cranial nerves. The time of appearance permits safe conclusions as to the location and progress of the tumor, perhaps even before there is evidence in the nose, as occlusion, etc. In the author's case, the disease began with pain in the right half of the head, with alleged swelling of the latter; the pain later spread over the whole head. There was also marked impairment of hearing in the beginning. Only about nine months later, the eye also became affected; there being difficulty in opening, especially, the right one. Still three weeks later, there were found convergent strabismus; paralysis of both recti muscles; diminution of vision; impairment of sensibility in the area of the second and third branches of the trigeminus; loss of taste on the right half of the tongue; absence of the sense of smell. As disturbances in the eye was observed only nine months after the appearance of neuralgia of the third branch of the trigeminus, it must be surmised that the tumor perforated the lateral wall of the sphenoid sinus rather deep down and far back, where it could attack first the third branch of the trigeminus. The temporary freedom of the other nerves near the sinus can also be explained by the greater ease with which they could yield before the pressure of the growth. The marked impairment of vision could be ascribed to pressure on the optic nerve from displacement of the upper wall of the sinus, without the necessity of neuritis or choke papilla. Judging from anatomic specimens, perforations through the middle of the lateral wall of the sphenoid sinus would be followed by compression of the internal carotid and the cavernous sinus, possibly with subsequent circulatory disturbances. Then, the abducens would be affected, running close to the carotid; then, the oculomotor and its near neighbor, the trochlear nerve; lastly, the second

branch of the trigeminus nerve, because it cannot yield before the pressure just before passing through the foramen rotundum. The third branch of the trigeminus would be first affected in perforation through the posterior part of the lateral sinus; being attacked just before entering the foramen ovale, and being just as unable here to escape the pressure. The oculomotor nerve lies closer to the posterior part of the sphenoid sinus than the abducent, but will nevertheless be implicated later, because it is adjacent to the thicker portion of the lateral walls, which are perforated less easily. Nerves may be affected, not only by pressure, but by inflammatory processes in the neighborhood of the tumor. Such cases will make the diagnosis more difficult, as the pronouncedly rapid progress of the disease would point to a pure phlegmon. The sense of smell was affected from implication of the olfactory tract by the tumor's breaking through the upper wall of the sphenoid sinus or from its filling up the naso-pharyngeal cavity and acting as a mechanical obstruction. Impairment of hearing could not be accurately interpreted, the data not being sufficiently noted. The most probable cause is obstruction of the tubal ostium. Reference to the extraordinarily loud subjective noises suggests the possibility that the tumor first perforated the lateral wall of the sphenoid sinus, then extended along the carotid canal, from the wall of which it eroded the capsule of the cochlea. Tumors of the sphenoid sinus may, perhaps, originate in the hypophysis. In such cases, the intracranial symptoms would appear very early, especially those from the optic nerve. Cerebro-spinal liquid escapes quite often, under the form of nasal hydorrhea. The author could not report a typical case of tumor of the frontal sinus. There the symptoms would resemble those of tumors of the anterior ethmoid cells when perforating into the orbit and the cranial cavity; perhaps, the levator palpebrarum and superior rectus muscles would be affected. Or, they might resemble those of a simple empyema of the frontal sinus. Further observation are very much to be desired as all operations for such malignant tumors are most serious.

Morgenthau.

Report of Two Cases of Dermoid Cyst of the Nose.

H. S. BIRKETT, Montreal (*N. Y. Med. Jour.*, Jan. 19, 1901), reports these cases. The first occurred in a young man 16 years old. At birth it was noticed that there was a small round lump, of about the size of a pea, on the nose near the tip. This remained so for twelve years, when it burst and gave exit to a small quantity of thick, curdy-looking pus. The opening was enlarged and the lesion curetted. This healed temporarily, when the lump again appeared and broke, and continued to discharge. A skiagraph showed a fine dark line, leading from the centre of the opening directly upward and backward into the septum. The sinus was opened and freely curetted and solid nitrate of silver applied. At the distal end several fine hairs were found close to the opening. The wound was allowed to heal up from the bottom, and the result finally was very satisfactory. The second case occurred in a boy 8 years old, who had a growth on his nose since birth which recently increased in size until it extended from slightly above the line of the eyebrow to about the centre of the nose. A skiagraph showed no deep involvement and no separation of the nasal bones. The cyst was incised and the wall carefully dissected out. The opening closed completely, leaving a very imperceptible scar. Photographs of both cases, before and after operation, are shown.

Pharyngeal Adenoids; Their Frequency and Sequelae.

D. P. KERRISON, New York (*N. Y. Med. Jour.*, Feb. 2, 1901), states that pharyngeal adenoids in children are very much more common than they are generally supposed to be. Cases of moderate development are often not recognized. Adenoid growths of moderate size, though not necessarily accompanied by marked symptoms at the time of their development, are often responsible for grave conditions felt during adolescence and adult life. Unless removed, pharyngeal adenoids are in nearly all cases accompanied by more or less impairment of hearing. Their presence adds greatly to the gravity of intercurrent diseases, and increases the patient's receptivity to the germs of tuberculosis and diphtheria. Therefore the periodical examination of children for the presence of adenoids should become a routine measure of

prophylaxis. Cases of moderate development, no less than those in which the growths are of large size, demand prompt surgical treatment. This should aim at complete ablation or removal of the growth, which in most cases is best accomplished with the patient under the influence of a general anesthetic.

Treatment of Sphenoidal Empyema by Trepanning Both Sinuses Through the Healthy Maxillary Sinus.

F. FURET (*Presse Medicale*, February 6, 1901). The case was a young lady, 25, and a diagnosis was made of double sphenoidal empyema, without involvement of other accessory cavities. She was seen first on May 1, 1900. On May 15, the left middle turbinate, and on May 26 the right middle turbinate were removed. The ostium from which the pus escaped could then be seen, and an opening was made sufficiently large to permit lavage and partial curettage. The nasal cavity was, however, still very narrow, in spite of these operations, and interfered with proper treatment, so that after six months the improvement was only slight. On December 18, 1900, under chloroform, the left maxillary sinus was opened after the Caldwell-Luc manner. The nasal wall was excised back to the left sphenoidal sinus into which a large opening was made. Communication was then established between the two sphenoidal sinuses, both were packed with iodoform gauze, and the gingivo-labial wound sutured. After six weeks the patient returned to her work with only a little suppuration, for which irrigation was done through a catheter. The writer considers the procedure indicated in the following conditions: 1. When the maxillary sinus is itself, involved. 2. In sphenoidal sinusitis complicated with cerebral involvement, where quick and thorough action is necessary. These are not rare, as has been shown by Toubert in a recent study. 3. In sphenoidal sinusitis occurring in an individual with narrow or deformed nasal fossae.

The Surgery of the Turbinal Bodies, With a New Method of Operating.

J. E. BOYLAN, Cincinnati (*N. Y. Med. Jour.*, March 9, 1901), draws the following conclusions from 3 turbinotomies: 1. While in exceptional cases involvement of the whole erectile tissue area of the pendulous portion of the

body may coexist, hypertrophy is usually greatest where this tissue is most abundant, namely, at the anterior and posterior extremities. 2 The relief of obstruction and the reduction of hypertrophy in these cases is accomplished more certainly and scientifically by ablation than by cauterization. 3. While venous dilatations is greatest at the posterior extremities, obstruction is rarely due to hypertrophy at this point alone. Removal with the cold snare is the method of operation advocated. The clean smooth edge of the cut made by the transverse passage of the wire through the body, the small amount of hemorrhage, and the possibility of the following loop, with the eye quite to the point reached commend this method, and the use of the saw and scissors should be restricted to cases with excessive in duration suggesting an exceptionally thickened bone. To prevent the slipping forward of the loop over the medial surface and lower margin of the body, the end of the loop may be fixed by burying the point of a fine tenaculum, the hook of which forms a right angle, into the lower margin of the turbinated body at the point of operation, carrying the loop over its handle into the meatus and adjusting it so that it passes behind and is held in place by the back of the hook. The principle involved in turbinotomy is the radical removal of that part of the tissue which is the final cause of obstruction and in which hypertrophy is furthest advanced leaving the less affected part, which is to perform the function of the body uninjured by operative procedures. The indication is to remove as little tissue as possible consistent with the freeing of the passages from obstruction of respiration. A comparison of the results obtained by this method with those from the use of the cautery will operate to restrict extensive burning out of the nose hereafter.

Persistence of Symptoms After Removal of Adenoids and Tonsils: Causes of.

F. HUBER, New York (*Pediatrics*, March 1. 1901). It not frequently happens that cure for mouth breathing promised by the removal of adenoids fails to accomplish the desired result. Any of the numerous causes of obstruction to the free passage of air through the nose must then be sought for, as the cause of the trouble will certainly be found in this region. Adenoids are curetted

without narosis by the Delstanche modification of Gottsteins curette. After the operation warm salt water is instilled into the nose every few hours, and subsequently two or three times daily for at least a month. Massages of the facial muscles restores their loss of tone.

Aqueous Extract Suprarenal Gland in Presistent Epistaxis.

L. S. SOMERS (*Phil. Med. Jour.*, March 2, 1901), adds 1 grain of pure carbolic acid to a dram of sterile water containing ten grains of adrenal, and filters. The solution retains its maximum efficiency and is both sterile and permanent. Eucain may be added with advantage in strength of one to three per cent. For epistaxis pledgets of cotton saturated with solution are applied to the bleeding point. The surface is blanched and the muscular walls of the arterioles contract so that blood cannot flow through them. Two cases are reported.

Angeloma Cysticum of the Nose.

H. L. WAGNER San Francisco (*Phila. Med. Jour.*, March 2, 1901), describes this rare form of tumor of the nose, of which he has seen two cases, in a boy nine years old and in a women twenty-eight years old. Both presented practically the same conditions. The nasal passage shows a single bluish-gray tumor obstructing the entire posterior of one side of the nose and protruding somewhat into the nasopharyngeal vault. The touch with the probe is very characteristic; this tumor shows a greater elasticity of its outer walls than any other found within these limits. It is very movable and attached to a small base appearantly a little distance below the foramen sphenopalatinum, where the sphenopalatine artery and vein enter the nasal cavity. During and after extirpation of the tumor, a light brownish fluid escaped, leaving a very thin collapsed sac of a sausage form. If the seat of the cyst is not thoroughly destroyed, it will rapidly form again. In the sections of the cyst wall diametrically cut a ciliated columnar epithelium was observed, covering nearly the whole external part of the growth with the exception of a certain portion, which consists of squamous epithelium. No glands were to be found in any of the sections but a large number of venous blood-vessels, some of them enlarged running paralld with the sac; also some large venous

sinuses were seen. As these vessels and sinuses constituted the principal elements of the cyst wall, the writer has used the term *angioma cysticum*. The cyst fluid was chemically analyzed and was found to represent a blood transudate.

The Non-Myxomatous Character of Nasal Polypi.

JONATHAN WRIGHT, Brooklyn, N. Y. (*Medical Record*, Jan. 26, 1901), traces the history of the nasal polyp from early medical literature down to the present, and argues against the assumption that it is myxomatous in character. On the contrary, most polyps consists simply of the normal amount of loose areolar tissue infiltrated and stretched with serous exudate, and do not contain fibrous tissue to any extent, nor are they proliferations of embryonal tissue, or any other kind of tissue. This error of calling mucous polypi myxomatous is found in many text books.

Richards.

Primary Adeno-Carcinoma of the Nose.

POLYAK. (*Pester Mediz. Chirurg. Presse*, 1900. No. 51.) The patient had presented himself a year and a half ago, with a growth in one superior meatus, which on microscopic examination was found to be a pure papillary adenoma. A change soon took place, and the microscope showed carcinomatous metaplasia. In the late course of the affection the mass grew into the other nasal passage and into the orbit. The autopsy showed metastases in the cervical lymph-glands, lungs, ribs, liver and spleen. The age of the patient and other clinical details are not given.

Goodale.

Report of Twenty-Two Cases of Deflection of the Nasal Septum Operated On by Asch's Method.

G. KING, New Orleans (*Rev. Hebdomadaire de Laryngologie, d'Otologie et de Rhinologie*, Jan. 5, 1901), reviews the results of his operations according to Asch's method on 22 cases of deflected septum. His results were uniformly successful, most of the cases being discharged cured, a few owing to individual circumstances being greatly relieved, but not entirely cured. He summarizes his work under the following six heads: (1) Selection of cases. This method is particularly indicated in children and nervous patients who cannot stand an operation under local anesthesia. It has the disadvantage, however, that the blades of the

scissors is too large for convenient introduction into the occluded nares. In such cases he made a crucial incision with a strong, pointed bistoury. (2) Preparation of the patient. A nasal, alkaline, antiseptic douche is used 3 times a day for 2-3 days before the operation. Before introducing the cutting instrument, the nasal fossa is sponged with a tampon dipped in a weak solution of bichloride of mercury or carbolic acid. Suprarenal extract is an admirable hemostatic. (3) Choice of anesthetic. Chloroform is the best. A local application of 10 per cent. solution of cocaine sometimes suffices. (4) Position of the patient. The hemorrhage is so easily prevented by suprarenal extract that it is possible to lay the patient flat on his back. (5) Care in the use of instruments, selection of splints. Only two instruments are absolutely necessary, a pair of Asch's scissors or a bistoury, and an Asch's forceps. It is best to have duplicates at hand, also a periosteotome and a probe to tampon the cavity with gauze if necessary. The modified vulcanized tubular splints of Mayer are usually satisfactory. Care must be taken in introducing them, as it is very easy to catch one of the edges of the wound and push it to the bottom of the cavity, so that it fails to unite with the other edge, resulting in a perforation. (6) Post-operative treatment. It is advantageous to anoint the nose frequently during the first 24 hours with an antiseptic solution. The tube is then removed from the unobstructed side, and the patient allowed to go home, if all else is well. An alkaline douche is ordered every four hours; 3 to 4 days afterward the other tube is removed and the cavity douched. The tube is replaced and for 8 to 10 days patient's nose is douched regularly and examined every two days. At the end of this time the wound is usually healed, and the tube can be removed. Lavage and anointing with boric acid—vaselin is continued until complete cicatrization.

III.—MOUTH AND PHARYNX.

Retropharyngeal Abscess and Adenitis.

IRVING M. SNOW, Buffalo, N. Y. (*Archives of Pediatrics*, Jan., 1901). One case of retropharyngeal adenitis

and two of abscess are reported. The case of adenitis was in a one month old baby, and followed an intense rhinitis. There was a pyramidal swelling about the level of the epiglottis projecting forward from the posterior pharynx in the median line. The mass was hard, neither movable nor fluctuating—an enlarged retropharyngeal lymph node.

The treatment was mercurial inunctions and gray powder, although there was no actual evidence of syphilis. Recovery followed in about two weeks.

The first case of retropharyngeal abscess was in a boy of 16 months, and appeared some three weeks after an attack of influenza. The head was held stiffly erect; there was difficulty in swallowing, and obstructed, snoring breathing, especially in bed. On palpation the left tonsil was found to be swollen, and behind it lay a fluctuating swelling. The mouth gag was introduced, the abscess aspirated and afterward incised and evacuated. Relief did not follow; the head could not be moved without pain, the muscles of the neck remained rigid, the child continued feverish and languid for some two weeks, and was then attacked by a severe ileocolitis. Recovery was slow, but at the end of six months health was perfect.

The second case of abscess was in a boy of 15 months, who on being exposed to a child with a sore throat, almost immediately was attacked with pharyngitis and tonsillitis. For one week the symptoms were not especially severe, the baby playing about the house days and sleeping well at night. The breathing was of a hoarse, snoring character, and there would be attacks of choking when laid in bed. The lymph nodes of the neck became enlarged, but swallowing and nursing were easily done. At the end of 15 days there was an alarming attack of dyspnea, and the author saw the case for the first time. The child was breathing with the mouth open in a nasal, snuffling way, but was able to nurse with apparent ease. There was no cyanosis; heart and lungs were normal; voice was not hoarse or croupy; cervical lymph nodes were enlarged, notably at the angle of the right jaw. On depressing tongue with a spoon there was seen a full even bulging forward of the posterior pharyngeal wall, and the right tonsil was enlarged and pressed outward and forward by this swelling. On digital examination a large fluctuating

swelling could be felt. The case demanding operative treatment; assistance was called. The child was held on the lap, and the mouth gag introduced. He at once grew slightly cyanotic, and the gag was removed. After a few minutes the gag was again inserted, and the child again became livid, immediately stopped breathing, and was apparently dead. The gag was withdrawn, having been in place but a minute. The patient was inverted and artificial respiration by every known method persisted in for some time, but without avail, death having occurred almost instantly after removing the gag. Autopsy was refused, but the swelling was opened, when the pharynx was flooded with pus.

Commenting on the cause of death the author states as follows: "It will be remembered that for a week the child had suffered from attacks of dyspnea at night; during this time the abscess had steadily augmented in volume. The introduction of the gag stretched the jaws and pressed the root of the tongue back against the pharyngeal swelling.

Whether the cyanosis and sudden death were due to pressure on the larynx or laryngeal spasm or sudden impairment of function of the pneumogastric nerve is uncertain, but as suffocation usually occupies two or three minutes, and the baby apparently expired immediately, and efforts at resuscitation were futile, it is probable death was due to disturbance of the vagus."

A case of Dr. Emmett Holt's is cited, in which on using the mouth gag the infant of 7 months was suddenly asphyxiated. The gag was immediately removed. Intubation was performed and the child revived after artificial respiration had been done for several minutes.

These cases seemed to be due to the inflammation and suppuration of the retropharyngeal lymph nodes, which form a chain from the upper portion of the pharynx to its junction with the esophagus on either side of the median line. They are most prominent in infancy, and rapidly diminish after the third year. The affection is a disease of early life, 83 per cent. of Bokai's cases being under two years old. Symptoms are easily misunderstood; there is difficulty in swallowing, and the infant may refuse nourishment; the voice is frequently modified; the cry is nasal; the breathing snoring and snuffling in character;

and the mouth is open. If the abscess is deep down in the pharynx the breathing may be stertorous with attacks of choking or cyanosis. The abscess is commonly found at the side of the pharynx, behind or below the tonsil, and less commonly in the median line. It may or may not be visible on inspection. Palpation with the finger should always be done in suspected cases, and done quickly, since it may cause vomiting or choking.

"Once recognized no time should be lost in evacuating the abscess. Spontaneous opening is not common, occurring only in 19 out of 144 of Bokai's cases. Retropharyngeal abscess unrecognized and untreated usually ends in death. If rupture occur, the baby is suffocated by pus aspirated into the lungs. Death is generally due, not to slow suffocation, but to asphyxia from pressure on the larynx, to laryngeal spasm, or disturbance of the pneumogastric." The abscess may be incised through the mouth, first drawing off a portion with an aspirating needle, and afterward enlarging the opening with a bistoury; external incision is not advised. The author states that Holt opens the abscess with a sharpened finger nail.

(The reviewer has recently had a case of retropharyngeal abscess in a baby of eleven months, who was brought to him with the statement that the child was in severe stress for breath on account of a tumor in the throat. On depressing the tongue, the pharynx was found full of mucus, and a satisfactory examination was impossible. By palpating with the finger a fluctuating swelling was discovered in the median line, a little to the right, and behind the left tonsil. The child was immediately inverted, a number of rapid cuts made with the nail of the right fore-finger, and the abscess forcibly opened, which opening was enlarged sufficiently to drain the abscess. The child gasped for breath, and for a few moments it was doubtful whether it was alive or dead. It soon began to breathe, however, and the pus being all evacuated, recovery was rapid and uneventful. He feels certain that had a mouth gag been used in this case, and an attempt made to open the abscess by more approved surgical measures, he would have had a dead child. While the finger nail is not an aseptic and scientific surgical instrument, there are times when it is the most available instrument at our command).

Richards.

Structural Abnormality of the Hard Palate as a Cause of Impaired Function of the Vocal Cords.

E. N. MALJUTIN, Moscow. (*Fraenkel's Archiv.*, Vol. XI, 3,474). Two years ago, the author published an article on the influence of the formation of the hard palate on the quality of the voice in singers. Further observations have confirmed these views. But also in others who were required to speak much or to read aloud, great irritability of the throat and tendency to tire soon were noted and ascribed to insufficient arching of the high palate.

A student, aged 28 years, consulted the author on account of his abnormal voice which has troubled him since his fifteenth year. At that time, his clear child's voice began to change, but retained the character of a high, non-metallic falsetto until he became 17 years old. Electricity was applied, and he was advised to speak with as deep a voice as possible. He succeeded in learning to do so, but only for a short period. When he is excited or attempts to speak with a loud voice, he becomes tired, and his voice breaks. In phonation, the cords are approximated completely when low notes are uttered; when higher notes are formed the posterior part of the left cord lags, leaving a small gap. The structure of the upper jaw is striking; it is too narrow while of normal length (5 cm.) and of very great height (2.2 cm.). The author never saw so narrow a jaw, even in women. The distance between the back molars measures 2 cm., so that the hard palate has the shape of a narrow, deep sack. The explanation is advanced that the patient was born with a deformed upper jaw, and that the resonator was more adapted to a high feminine than to a deep masculine voice. As long as the vocal cords were undeveloped, the boy's voice was normally childlike. When, however, they grew larger, at puberty and could not vibrate the necessary number of times in the formation of high notes, the young man could not develop a deeper man's voice because the construction of the resonator made the transition exceedingly difficult. He could not retain the high voice because the long cords could not, in their whole length, vibrate quickly enough. Only a part of the cords was set in motion, and falsetto thus produced. As the patient was quite unmusical, exercises with tuning-forks and the piano had to be aban-

doned. A plate was made for him which made the palate somewhat concave, resembling the form of a resonator for a baritone. After a few months of indiscriminate use of the voice while wearing this plate, the patient's voice improved greatly. It became easy for him to use the middle register; falsetto notes became rare. He is now able to dispense with the plate altogether. His voice is non-metallic and hollow but not hoarse. Persons whose palates do not correspond with their voices must develop the faculty of changing, by means of the muscles of the soft palate and the larynx, the form of the resonator and thus securing better resonance of the voice. The plate enabled the patient to obtain this faculty of accommodation.

Morgenthau.

Hemorrhage from a Circumtonsillar Abscess.

W. F. CHAPPELL, New York (*N. Y. Med. Jour.*, March 2, 1901), reports a case of hemorrhage from a tonsillar abscess. The abscess pointed in the middle of the posterior pillar of the soft palate, where it was incised. Four days later the patient complained of a sudden severe pain in the throat, followed in a few minutes by a hemorrhage of about six ounces, which ceased on the application of tannic acid. Four hours later a second hemorrhage occurred of about eight ounces, which was also stopped by an astringent gargle. Five days later a third hemorrhage occurred, when eight ounces of blood were lost. A large incision was later made through the anterior surface of the soft palate and carried backward until the abscess cavity was reached. After thorough washing out of the blood clots with hydrogen peroxid, the ascending pharyngeal artery was seen, but no ulcerations could be discovered in its walls. The cavity was packed with iodoform gauze. This packing was changed daily for ten days, when the wound had healed and no further hemorrhage occurred. Ten similar cases which have been reported in literature are referred to; of these only two recovered. There seems no reason for the great mortality which these reports show. Immediate ligation of the carotid, on the occurrence of the first hemorrhage should be practiced, or, as proved successful in the case reported, a free incision through the anterior wall of the soft palate and firm packing of the abscess cavity with antiseptic gauze.

Angina of Vincent.

M. LETULLE (*Presse Medicale*, Dec. 29, 1900), describes two cases. It is an acute angina, tonsillar, febrile or afebrile at the beginning, with slight pain, moderate disturbance of function. The affection is characterized by an ulcerative, membraniform, pulpy or ulceromembranous inflammation of one tonsil, rarely both, and adjacent mucous membrane. The involvement of the submaxillary ganglia is slight, and the general state is little affected in spite of the fetid breath and the gastric disturbance which accompany the commencement. In the fresh debris and in the saliva under the microscope there are seen, together with other bacteria, two special elements. One is long, delicate, spiral, floating in the fluid, and after remaining immobile for some time, moves quickly, extending and retracing like a spring; but the amount of movement is not great. These are the spirocheta. The other is a sort of bacterium, long, swollen at the middle and moving more vigorously than the spirocheta. These are the spirille, and are always present in the disease. They have an undulating motion like a fish. The spirocheta are not always found. They can be dried and stained with Ziehl's fluid. Efforts at cultivation were unsuccessful, for either bacterium.

The Role of the Pneumococcus In Acute Anginas.

DEZANCON AND GRIPPON. (*Hebdom. de Med. et de Chir.* 1900. No. 85.) The ordinary methods employed in the bacteriologic examination of anginas are not sufficiently precise to determine with exactness the role played by such microörganisms as the streptococcus and the pneumococcus. A serum reaction, however, on the part of the organism in the presence of the given germ demonstrates the part which this germ has taken in the production of the disease.

The authors have studied twelve cases of acute non-diphtheritic angina with regard to their pneumococcus serum-reaction. This was positive in all cases, and presented a nearly uniform type of moderate intensity, and soon disappeared.

These results are in accordance with earlier bacteriologic examinations which demonstrated the existence of pneumococcus angina, and also an activity of the pneumococ-

cus in the anginas formerly termed streptococcus angina. A revision of the so-called streptococcus anginas seems consequently necessary. *Goodale.*

IV.—LARYNX.

Cyst of the Vocal Cord.

J. PARSON CLARKE, Boston. (*Boston Med. and Surg. Jour.*, Nov. 29, 1900.) Patient complained of hoarseness and difficulty of speaking. Above the surface of the right vocal cord was an oval, smooth, grayish-white, pearly swelling. Under cocain, an attempt was made to remove it with the Schroetter forceps, but it was so firm that the forceps slipped off. It was then incised with a concealed laryngeal knife, and a milky fluid exuded, after which the cyst disappeared. Microscopically the contents showed degenerated epithelial cells and a few leucocytes.

Nine months later there was no difficulty in talking, and the voice was clear. There were two minute knobs of mucous membrane projecting from the free edge of the vocal cord. *Richards.*

Laryngectomy Under Eucaïn Anesthesia, With Remarks on the Technique of the Operation.

GWILYM G. DAVIS, Philadelphia. (*Annals of Surgery*, Jan., 1901.)

Carcinoma of the Larynx—Laryngectomy.

JOSEPH S. GIBB, Philadelphia. (*The Laryngoscope*, Oct., 1900.) Report of the same case by the laryngologist under whose care the patient was previous to the operation.

This case is reported from two standpoints: by Dr. Davis from that of the surgeon, and Dr. Gibb from that of the laryngologist. The principal point of interest is that the operation was done under the influence of 1 per cent. eucaïn B. solution injected with a sterilized syringe. The operation was done under the most rigid aseptic and antiseptic precautions, without a previous tracheotomy. The patient had a short, thick, full neck, and only five or six tracheal rings could be exposed instead of the usual nine or ten found above the sternum. Except when the su-

perior laryngeal nerve was divided there seemed to be little pain, and at the completion of the operation he was comfortable and without any evidence of shock. 75 minims of the 1 per cent. solution of eucaïn B. were used. The trachea was entirely removed, the incision being made across it just below the cricoid cartilage, and it was stitched in the lower angle of the wound with silk sutures, the sides of the upper portion of the esophagus being approximated with catgut sutures. The wound above the trachea to the hyoid bone was brought together with silk-worm gut sutures.

The course subsequent to the operation was unsatisfactory; the temperature rapidly rose, being 109 on the fifth day, at which time he died. Autopsy showed streptococcus infection of the kidney, liver and spleen, while the immediate cause of death was pneumonia.

Dr. Davis then discussed the question as to whether tracheotomy should be done previous to the removal of the larynx, and whether general anesthesia should be used or not, and goes over the literature of the subject. His final conclusion is that preliminary tracheotomy ought to be done, and he thinks that in his own case had this been done the trachea would have been fixed in place, and there would have been no ulcerating wound constantly kept irritated by the tugging of the trachea on the skin. He does not consider that infection was introduced at the operation, but that the infection took place at the edge of the wound around the trachea on the surface posterior to the upper edge. General anesthesia was not used because of the danger of suffocative symptoms at the time of the operation.

Dr. Gibb also emphasizes the fact that that fixation of the trachea should be the first step in these operations. This should be accomplished by a preliminary tracheotomy.

Richards.

A Plea for Early Naked-Eye Diagnosis and Removal of the Entire Organ, With the Neighboring Area of Possible Lymphatic Infection in Cancer of the Larynx.

JOHN NOLAND MACKENZIE, Baltimore. (*Journal of Laryngology*, Oct., 1900.) Dr. MacKenzie argues against the removal of a portion of a suspected carcinomatous laryngeal growth for the purpose of verifying the diag-

nosis, since when this is done there is always danger of auto-infection at the point of incision and to metastasis elsewhere. It also stimulates the local growth of the cancer, and the information given by the microscope is often inconclusive and misleading. He is opposed to the endolaryngeal method of operating for cancer, and makes a plea for the early recognition of the growth by naked-eye diagnosis and then an early attempt at radical removal, and regards thyrotomy as justifiable as a diagnostic measure in cases in which there is a reasonable degree of doubt. He does not consider any operation as of any lasting good which stops short of complete excision of the larynx and the neighboring lymphatics and glands. Any operation should be done with the same degree of thoroughness that an operation for cancer is done in any other part of the body, and he states that "In the hand of a skillful surgeon extirpation of the larynx is not the ghastly operation that we have been taught to regard in the past, whilst its dangers are largely, if not wholly, preventable. Excision of the larynx and the removal of the neck lymphatics is one of the simplest and easiest dissections of major surgery, and the chief danger accompanying the former—septic pneumonia—may be perfectly done away with by low tracheotomy and packing between the tube and upper wound.

"The chief danger is not from the operation, but from recurrence in the neck lymphatics.

"No operation for laryngeal cancer is complete without the removal of the neck lymphatics."

The history of the treatment of laryngeal cancer up to the present time has been discouraging because the disease has been only partially removed. Favorable statistics and prognosis in cancer of the larynx will not appear until the surgeon removes not only the entire organ, but also the neighboring lymphatic area, nor can the conscientious surgeon consider that he has done his whole duty to the patient and himself unless he has done this.

Richards.

Laryngology and its Relation to General Medicine.

J. SOLIS-COHEN, (*Journal of the A. M. A.*, July, 21, 1900). Dr. Cohen makes a plea for broader specialism, for more attention to the general bodily condition of the

patient; the laryngologist ought to be a physician, not a mechanic. The whole domain of medical practice may be more or less intimately associated with laryngology. He sites many examples of this, and concludes by saying that the practitioner of diseases of the nose and throat should be competent to practice general medicine in order to do justice to his specialty, and to his patients.

Richards.

Angiomata of the Larynx

SEIFERT, Wurzburg (*Rev. Hebdom. de Laryng., d' Otol. et de Rhinol.*, January 12, 1901), says: Angioma is one of the rarest of the benign tumors of the larynx. Faurel has observed only 1 in 300 cases of benign tumors of the larynx, Jurasz 2 in 193, Schrötter and Moritz Schmidt each 1. Isolated cases have been published by Heinze, Elsberg, Kidd, Loonus, Wolfende, Glasgow, Tanler, Pantaloni, Hamilton, Bond, Magnan, O. Chiari, Krieg, etc., but these were surely only angio-fibromata, or more correctly vascular fibromata. Those cases of Bond, where there was a very bloody expectoration, or those of Loonus and Magnan, where there were at the same time angiomata upon the soft palate, the tonsils, the left side of the tongue, the left ventricular bond and vocal cord, and those of Chirai and Krieg can be considered as true angiomata. In all these cases, there is a cavernous tumor, very rarely a simple angioma, and very rarely, indeed, varies. The cavernous-lymphangioma has been observed only once, and the site was the ary-epiglottic fold.

I have met with only one case of tumorous varix of the larynx. It was in a man, age 50, who had very frequent hemorrhages. The tumor, which was situated upon the left vocal cord, was removed by means of a Schrötter's forceps.

Angiomata develop very gradually. The cavernous are raspberry like prominences of a deep red or bluish-red color, sometimes almost black. They often act as true erectile tumors, their volume being increased by pressure (Krieg). The simple angioma most often appears as a level prominence, close examination of which shows it to be composed of a large number of fine vessels. The varix forms a bluish-red nodule.

The false angiomata, especially the angio-fibroma, are

less rare; in 54 cases of benign tumors of the larynx observed in the last 9½ years, I have found 8 angio-fibromata, of which 7 were in men and 1 in a woman. The age of the patients ranged from 36 to 50 years.

The angio-fibromata were situated 3 times on the left vocal cord, 3 times on the right vocal cord and once on the anterior commissure. In the case shown in the atlas of Seifert and Kahn, there was a tumor on each vocal cord.

The angio-fibromata are tumors of the size of a lentil or pea, very rarely attaining that of a cherry, presenting usually a large base, only exceptionally possessing a pedicle more or less pronounced and noticeable for their deep, bluish-red color and unequal, irregular surface. The vocal cords are the most frequent seat of the tumors, but they have also been observed on the ventricular bands, in the vestibule of Morgagni, on the anterior commissure and on the ary-epiglottic fold. They are usually single, sometimes multiple as in a case upon which I operated.

The angio-fibromata as well as the pure angiomas and simple fibromata, are more often observed in men than women and are often accompanied by hyperemia and chronic catarrh of the larynx.

Among the 8 cases of angiomas of the larynx which I have observed, the following appeared especially interesting. It was in a man of 50 years. Suffering for a year with pronounced hoarseness. Believing that it was simple catarrh of the larynx, the physicians he had consulted had him take the treatment at Reichenhall, etc., which had produced no alleviation. There had never been hematemesis.

The examination of the larynx on Dec. 11, 1899, showed, in addition to very pronounced inflammation of the organ, the presence on the anterior commissure of a tumor slightly larger than a pea, of a bluish-red color and of aspect and form to justify the diagnosis of an angioma. Ablation performed by means of a Schrötter's forceps was a little difficult, since the surface of insertion of the tumor extended up to the sub-glottic space. The hemorrhage following the operation was very abundant but was stopped at the end of ten minutes, after the patient had eaten considerable ice. The voice became clear immediately after the operation, the cure was accomplished without accident,

and the patient actually possessed an absolutely normal voice.

Microscopic examination showed that the tumor was composed of connective tissue with numerous cavernous spaces filled with blood. The connective tissue presented a peculiar fibrinous degeneration. The epithelium of the surface was transformed into horny layers, which gave to the edges of the tumor a white color which had been observed in the laryngoscopic examination.

V.—MISCELLANEOUS.

Mercuriol as an Antiseptic in Diseases of Nose and Ear.

R. LAKE, London (*London Lancet*, December 15, 1900), describes several cases of nose and ear affections which he treated by mercuriol, in solution of 2½ per cent. to 5 per cent. He finds it to be of great value, but not exceeding bichlorid of mercury or carbolic acid. It is probably the least irritating efficient antiseptic that can be used, and is of value in irrigating sinuses, e. g., maxillary sinus.

A Peculiar Case of Migratory Foreign Body.

D. B. KYLE, Philadelphia (*N. Y. Med. Jour.*, Jan. 19, 1901), reports this case which is of unusual interest on account of the complicated and varied symptoms which were presented. The marked symptom in each attack was severe neuralgic pain, but the site of the pain, soreness and swelling changed frequently. At times the attack would simulate mastoiditis, again ethmoiditis, and, lastly, all the symptoms of confined suppuration of the maxillary sinus. When the attack was over, there was such an absence of any symptoms that it was impossible to locate any special diseased area. The first attack occurred in January, 1887, and lasted nine weeks. There was a sensation of something crawling underneath the scalp, that seemed to extend from the back of the neck forward over the top of the head. In December, 1898, the attack was almost identical with the confined suppuration of the frontal sinus. There was a profuse discharge of pus from the nostrils, and a small piece of needle was expelled on forcibly blowing. This was followed by a cessation of the crawling sensation. When first seen by

the writer, almost a year later, there was pronounced swelling on the right side of the face, reaching the antrum and up into the orbit, and at the base of the nose. An X-ray picture was taken, which showed that a foreign body was present. Exploration of the antrum failed to detect it, however. A few days later there appeared, about a quarter of an inch back of the opening that had been made into the antrum a swelling which looked much like an ordinary gum boil. This was opened and on examination the point of a needle was discovered projecting from the tissues. This was readily removed with a pair of cissors, and since that time the patient has had no further symptoms. It could not be ascertained how the needle had entered.

The Dose of Potassium Iodid, with Reference to its Untoward Effects upon the Upper Respiratory tract.

LEWIS S. SOMERS, Philadelphia. (*Medical News*, Sept. 29, 1900.) The extreme variation in the susceptibility to iodid of potassium, both in conditions in which syphilis is present and in which it is not, is spoken of at length, and a case cited in which one grain of the drug three times daily produced exaggerated symptoms of iodism. In this case, syphilis was probable. In another case, in which there was no likelihood of syphilis, the drug was administered in doses of 240 grains three times a day, and at the end of the third day there was no iodism and no symptoms other than a little nasal congestion and a subacute conjunctivitis.

The author does not believe that the mere fact of the patient bearing large doses of iodid of potassium is to be taken as proof presumptive of syphilis. Iodism, in his opinion, is usually due to insufficient elimination, though this theory does not explain those cases in which the dose of iodid administered has been extremely small. Why iodism appears in some individuals and not in others has been explained by using the term idiosyncrasy, but this is in no sense an explanation. The unpleasant effects of the drug are lessened if it is given in connection with other drugs, as arsenic and belladonna, and if the condition of the digestive tract is kept good. It should be very much diluted, and, in addition, liquids in copious amounts should be taken, as these favor elimination and lessen the disagreeable effects.

Richards.

Diphtheria Bacilli in Healthy Throats and Noses, with Report of Cases.

FRANCIS P. DENNY, Brookline, Mass. (*Boston Med. and Surg. Jour.*, November 22, 1900.) Cultures were taken from 285 healthy individuals, only 7 of which showed the presence of diphtheria bacilli. Excluding 50 persons, who had been exposed, there remains only one positive case from 235 healthy individuals. Cultures were also taken from 190 healthy boys in a school where 10 boys had sore throat and diphtheria bacilli; of these, 16 were positive, showing, as did the 50, the following conclusions:

“(1) Diphtheria bacilli are seldom found in the throats of those who have not been exposed to diphtheria.

“(2) The bacilli are more frequently found in those who have been exposed, especially in persons living under poor hygienic conditions or in institutions.

“(3) The conditions of institution life which favor the growth of the bacilli in healthy throats are the living together of a large number of persons in a limited air space.

“(4) Healthy individuals with virulent bacilli in their throats can spread the disease. They are just as dangerous as mild or convalescent cases of diphtheria, and ought, therefore, to be detected and isolated.

“(5) Cultures ought to be made among those who have been exposed to diphtheria: (a) By physicians among the members of a family who have been exposed; (b) by inspectors in the schools; (c) by health officers under any circumstances when they think the disease is being or may be spread by such individuals.” *Richards.*

On Carcinoma of the Thyroid Gland.

M. D. GLATZEL, Berlin, Germany. (*Fraenkel's Arch.*, XI., 3, 448). Only cancers of the pancreas, liver and lungs are more rare than those of the thyroid gland. The latter were found in 2.6 per cent. of all cases collected during ten years by Hinterstoisser. The author observed a case in which, during life, the diagnosis was made of malignant enlargement of the thyroid gland (struma) with perforation into the trachea. On looking through the literature, he was struck by the fact, in hardly any report, post-mortem findings were missing, so that he surmises that the diagnosis never was made at an early stage, *i. e.*,

in time to admit of an operation. Thyroid gland cancer is exceedingly rare in young people. Preferably, it attacks persons between the age of 30 and 50, or, according to Hinterstoisser, between 40 and 60. Men are affected somewhat more frequently than women. It has been found to be more common in countries where goitres abound, which point to the probability of an already degenerated gland's being more favorable soil. In Kaufmann's collection of cases, not one was met with in which the gland could be pronounced to be normal. This agrees with the opinion of other writers. In the author's photograph, goitrous tissue can be well distinguished next to the carcinomatous portions. Cancer rarely attacks the whole gland: usually, but one lobe; most rarely, the isthmus alone. Unfortunately, the more common restriction of the disease to one lobe is not of much value in diagnosis, because not only does common, benign goitre quite often appear on one side, but the non-carcinomatous lobe is rarely of normal size, being enlarged by single adenomatous nodules or by diffuse colloid hypertrophy.

The cancerous tumors in the thyroid gland vary greatly in size, from a hen's egg to a child's head. Cystic and other goitres may, however, become just as large, or, in rare cases, there need be no visible swelling and change in the region of the neck, the neoplasm growing inward only. In the author's case, nothing could be palpated externally to the left lobe of the thyroid gland, although it had encroached, to a marked extent, on the tracheal lumen. Rapid growth in relatively short time, in a few months, is more suspicious. When the carcinoma begins in a pre-existing goitre, patients will state that the swelling in the neck has gained in size to a remarkable degree from a certain time on; after having increased either not at all or very little in years, even in decades. Injuries and acute inflammations of the thyroid gland offer distinguishing symptoms. The surface of the tumor usually is irregular and nodular. While fibrous and parenchymatous goitres present the same superficial appearance, their very slow rate of growth is of diagnostic importance. There being nothing very characteristic in the size, surface and consistency of cancer, the rate of growth must be considered of great importance. When the later symptoms de-

velop, as invading the neighboring tissue; displacing, compressing and perforating the trachea and esophagus; affecting the nerve and blood vessel trunks; producing metastases in lungs, bones, etc., leading to cachexia—then there is no more doubt as to the malignancy; but then the case is always so far advanced that operative measures are no more indicated.

The bountiful venous supply in the thyroid gland accounts for the fact that metastases occur so early in more remote organs by way of the blood channels, even before the regionary lymphatic glands are infected. Kaufmann suggests, as a means of accurate diagnosis, introducing a trocar, 2 to 4 mm. in diameter, withdrawing the stilet, and removing a piece of the growth by a few lateral and turning motions. The thyroid gland has but few nerves; a growing carcinoma gives the patient but little pain as long as it is intracapsular, and he consults a physician only when he experiences pain radiating to the ear, the temples, the teeth, etc., or when he has difficulty in swallowing and breathing. When H. Braun declares that only such malignant goitres are adapted for radical extirpation which are movable and completely encapsulated, which can be defined above the sternum, which allow of feeling the pulsation of the carotid on their external surface, and which have not caused infiltration glands—then, according to the author, he simply points out the impossibility of recognizing the indications for intervention at the right time.

A laborer, 48 years of age, visited the throat clinic of Berlin University, August 18, 1900, because of difficulty in breathing. He stated that his disease had begun in the spring of 1900, with the sensation of a "fleshy mass" in the larynx. There was ex- and inspiratory stridor. In the front of neck, at the inner margin of the right sternomastoid, between cricoid cartilage and manubrium of the sternum, an enlargement was felt, as a nodular, almost gristle-like tumor of the size of a hen's egg, which was drawn upward when the patient swallowed, but could not be moved very much when the trachea was at rest. No pulsation either on the tumor or elsewhere on the larynx. No tumor could be palpated on the left side. In quiet restoration, the right vocal cord remained in the median position with its margin slightly conclave.

The author was able, August 22d, to see masses covered with mucous membrane and arising from the lateral walls of the trachea, at the level of the upper rings, especially on the right side, of about the size of a pea, nodular, and encroaching on the tracheal lumen. The X-rays showed a distinct, non-pulsating shadow on the right side of the neck; none on the left. Frontal flattening of the trachea, which Kocher ascribes especially to malignant neoplasms of the thyroid gland, could not be found. There was no rise of temperature. There was no metastatic foci in internal organs to be made out. In the region of the right greater hyoid horn, a few lymphatic glands, of the size of a bean and not especially painful, could be palpated. As iodid of potassium treatment was of no avail, he was sent to the surgical clinic, with the diagnosis of carcinomatous goitre of the sight side with perforation into the trachea. Although inferior tracheotomy was done, the canula could not be pushed sufficiently far into the exceedingly narrowed trachea, and the patient died of asphyxia. The autopsy confirmed the diagnosis (medullary carcinoma). An accurate report of the microscopic findings, with beautiful illustrations, accompanies this article.

Morgenthau.

Removal of Foreign Body From Bronchus.

H. MILTON, Cairo (*Lancet*, January 26, 1901), reports a case of the removal of a tracheotomy tube from the bronchus by means of intrathoracic tracheotomy. The operation was a success, as the foreign body was removed, but the wound became septic, and patient died of acute septicemia.

Phenosalyl in Laryngeal Tuberculosis, and in Some Other Diseases of the Ear, Nose and Pharynx.

VON STEIN. (*Klin. Therapeut. Wochensch.*, October 28, 1900.) Phenosalyl is the name given to a mixture devised by Christmas composed of:

Acid Carbol.....	9.0
Acid Salicyl.....	1.0
Acid Lactic.....	2.0
Menthol	0.1

In a series of experiments as to its antiseptic qualities,

phenosalyl was second only to bichlorid of mercury, and is less poisonous.

It is prepared in the following manner: The measured amounts of carbolic and salicylic acids are placed in a dish and heated over a waterbath until the salicylic acid is dissolved, after which the other ingredients are added.

The mixture is used in 3 and 5 per cent. glycerin solutions.

In laryngeal tuberculosis, it was applied after previous cocainization in 5 per cent. solutions. Its action was extremely satisfactory, relieving the dysphagia almost immediately, while in the majority of cases causing a marked improvement in the local lesions.

Among nasal affections, its action was most pronounced in coryza, the application of a 3 per cent. solution frequently cutting the attack short, and in chronic rhinitis, where it was applied after cocainization, in 5 per cent. solution. In the latter affection, the remedy brought about striking improvement in numerous obstinate cases characterized by hypertrophy and abundant discharge.

In atrophic rhinitis, acute tonsillitis, pharyngitis and chronic purulent otitis, it proved of service. *Goodale.*

Vibratory Massage of the Upper Air-Passages.

MICHAEL BRAUN, (*Klin. Therapeut. Wochenschr.*, Nov. 11, 1900), reviews the technique of his well-known method of vibratory massage, and calls, in particular, attention to the benefit to be derived from it in many cases of migraine. Here, after cocainization, the sensitive regions about the middle meatus are massaged with the sound, generally twice a day, for a period of from three to twelve minutes.

In old obstinate cases of deafness, massage of the orifice of the Eustachian tube with the cotton-protected sound, in connection with external massage of the mastoid region and antitragus was productive of decided improvement in the hearing, after other methods of treatment had proved fruitless. *Goodale.*

The Therapeutic Properties of the Suprarenal Capsule.

W. H. BATES, New York. (*Journal of the A. M. A.*, August 11, 1900.) No condition of organic disease contraindicates the use of suprarenal and non-septic solutions are absolutely harmless. A stable solution can be

made by mixing one part of the dried suprarenal with ten parts of saturated solution of boracic acid in a test tube and holding it over a flame until it boils; then filter and boil the filtrate in its permanent receptacle. This solution will retain its activity for the mouth but is not so active as one prepared without the boracic acid. Freshly prepared solution gives the best results. If used in the form of powder or emulsion the excess should be removed to prevent infection nor should tampons wet with the extract solution be left in the nose since infection occurs in a few hours, with vascular disturbance and secondary hemorrhage. The author says that cases of deafness have been cured by suprarenal, but does not give any details as to class of cases or method of using. In the nose and throat, suprarenal is used successfully in controlling hemorrhage after major operations, and as an aid to other treatment by lessening congestion; for the relief of dysphagia in laryngeal phthisis; in the acute laryngitis of singers, and internally five grains three times a day in diseases of the nose and throat. Suprarenal has been found to be a specific for hay fever, being used locally and internally. Six grains of the dry suprarenal placed on the tongue and slowly dissolved has relieved edema of the glottis with alarming symptoms. The hemostatic property of suprarenal is well known, as far as making the operation bloodless when applied to mucous membrane is concerned; the author, however, states that hemorrhage can be controlled by its internal administration, and says that cases of intra-ocular bleeding, severe uterine hemorrhage, and the hemorrhage in ulceration of the stomach has been controlled by its use. In exophthalmic goitre the case improved immediately after the first dose; the circulatory disturbances, the tremor and thyroid enlargements became less. It has been found useful in asthma, and is a heart stimulant of great power, being useful in nearly all diseased states and having no apparent effect on the normal heart. The author concludes by saying that he finds indications for its use in the majority of his cases and is constantly extending its therapeutic application. His results have been confirmed by others; a few physicians have been disappointed in their use of suprarenal extracts.

Richards.

A Foreign Body in a Secondary Bronchus.

FIREB. (*Ungar. Mediz. Presse*, Nos. 33, 34, 35.) A boy had inspired a rounded lead button, about 8 mm. in diameter. Several months later the foreign body was removed from its site of lodgment at the bifurcation of a bronchus of the second dimension by Dr. Herman von Schrötter, by means of a Killian's tube introduced under cocaine through the natural passages, the forceps being manipulated under guidance of the eye. The patient made a good recovery. *Goodale.*

Value of Thiol Treatment of Nose and Throat.

WALTER WELLS. (*Wiener Med. Presse*, No. 14, Oct. 7, 1900.) Thiol recommends itself for use on account of its richness in sulphur. The author prefers it to ichthyol, and considers the value of ichthyol to be due to its sulphur. Thiol is an artificially prepared ichthyol free from odor, and possessing the same physiologic and therapeutic properties. In cases of atrophy of mucous membrane, dryness, etc., it is of slight benefit; in all other forms of catarrhal inflammation of upper air passages it is a remedy of marked value; acts best in acute inflammation of rheumatic or gouty nature and is of a marked service in acute tonsillitis and pharyngitis. It is applied in 10 and 15 per cent, solutions in glycerin. It is good in chronic inflammations of pharynx with swollen, lax mucous membranes and subjective sensations of burning, itching hoarseness, etc. The author calls attention to the selections between skin and the mucous membranes and puts forth the probability that which is of service in skin affections is likely to be of service in disease of mucous membranes. Hence the value of thiol with its sulphur. *Allen*

**Fourth Report on the Patients Treated During the Year 1898 in
the Hospital and Outdoor Department for Aural Diseases
at the University of Strassburg.**

ALEXANDER. (*Archives of Otology*, Vol. XXIX, Nos. 2 and 3.) The author tabulates all the more important cases, with diseases of the ear, nose and pharynx and gives a list of various hospital operations. An epidemic of erysipelas appeared in two different periods during the summer and late autumn and he briefly records the

histories of nine operation cases which became infected.

Campbell.

Problems in Etiology, Diagnosis and Treatment of Tuberculous Diseases of the Upper Air-Passages.

JONATHAN WRIGHT, Brooklyn. (*Medical News*, January 19, 1901.) The tissues themselves possess powers of resistance in certain localities which they do not have in others. Tuberculosis is very infrequent in the nose, comparatively so in the pharynx, more frequently found in the larynx, and most common of all in the lungs. The diagnosis of tuberculosis of the larynx requires, as a rule, not only the local examination with the eye, but also the history of the patient, and may easily be confounded with syphilis of the larynx, though there is usually no difficulty in clearing up the diagnosis if the observer is on his guard, and death should not occur from syphilitic laryngitis. Iodid of potash and mercury are valuable diagnostic aids, and the sputum examination should not be neglected. Local and climatic treatment are both to be used when possible. Up to the present time, but little has been accomplished in the way of recoveries, nor have the various methods of treatment done much toward permanent recovery, although much has been done and can be done toward the palliation of the symptoms. Lactic acid, iodoform and orthoform, applied locally, and the intralaryngeal and intratracheal injection of various oils frequently, for the time at least, help the pain and cough. Opiates internally are justified and local sprays keep the surfaces clean. Occasionally a patient will be benefited by the removal with cutting forceps and curette of granulations and affected tissues, especially when the surface vegetation covers ulcers.

The author regards the temporal optimism which suppresses what the reporter knows to be the whole truth to have been a great detriment to the conscientious study of the treatment of this terrible disease, and hopes that the unflinching and conscientious adherence to what one believes to be the whole truth will enable the future to find the cure for tuberculosis in man which we do not now possess.

Richards.

Rheumatic Fever in Relation to the Throat.

ST. CLAIR THOMPSON, London (*Laryngoscope*, Janu-

ary, 1900), states that there is a general acceptance of the view that an undoubted association exists between rheumatism and tonsillitis. This is expressed from two points of view: one is that the rheumatic poison enters the system through the tonsil, the inflammation of which is the first local expression of the disease; the other view is that tonsillitis is, in certain cases, one of the rheumatic manifestations of the rheumatic diathesis. These views are supported by numerous observations. Many of the clinical records are too fragmentary to advance the subject, and it does seem that the various theories which have been propounded are somewhat premature, and that it is much safer to await further pathologic investigations to show which of our clinical deductions are trustworthy.

Further knowledge is required as to the nature of rheumatism itself, and also as to the various causes and forms of tonsillitis associated with it. So far peritonsillar abscess, or quinsy, is one form which is not accepted as commonly of a rheumatic nature. It is not mentioned by Fowler or Martle, and Hingston Fox excludes it as a rheumatic disease. Trousseau does not particularly refer to tonsillitis as a forerunner of rheumatic fever, but to an evanescent form of sore throat. Evidently the subject will bear closer investigation.

The present state of our knowledge on the relation of tonsillar affections to rheumatism might be summarized as follows:

1. It is undoubted that a certain number of cases of acute rheumatism are preceded by an angina in a proportion varying from thirty to eighty per cent.

2. Both rheumatism and angina have many etiologic points in common—season of year, cold, wet, fatigue, depression, vitiated air, etc.

3. The connection of angina and rheumatism, though undoubted in a number of cases, is not yet clearly established.

4. The tonsil may be the port of entry of the rheumatic virus, and this even although the naked-eye appearance of the throat gives no indication of its being affected.

5. The particular affection of the throat which is associated with rheumatism is not yet established. Apparently it is not peritonsillar abscess (quinsy).

6. Peritonsillar inflammation does not appear to be arrested by the administration of anti-rheumatic remedies. Many cases of parenchymatous and lacunar tonsillitis, on the contrary, are considerably benefitted by the administration of salicine or salicylate of soda. That this action proves the rheumatic nature of the disease cannot yet be accepted.

7. The question requires further research in two directions: One is differentiating the various forms of angina, and settling the one which is associated with rheumatism; the other in further research to discover the true nature of rheumatism.

The localization of acute inflammation in the crico-arytenoid joint is a well-established affection. It may precede a generalized attack of acute rheumatic fever, and until the latter appears the diagnosis is sometimes difficult; it may occur during the course of the acute illness, and it may be met with as an independent affection. The patient generally complains of some pain and dysphagia, with tenderness on palpating the region of the crico-arytenoid joint—*i. e.*, the outer and upper border of the thyroid cartilage. The pain is worse when the patient is recumbent, particularly if he swallows in that position. Inspection with the laryngoscope may reveal nothing in the early stages, or until the soft parts over the articulation have become inflamed, when they may be seen to be red and swollen. The movement of the vocal cord on the same side is at first sluggish, and is said by some to be jerky. With the development of inflammation or effusion into the joint the vocal cord on the same side becomes fixed. We are then met with the difficulty of diagnosing between a rheumatic crico-arytenoid inflammation and paralysis of the recurrent laryngeal nerve. In many cases, the following symptoms, tabulated by Escat, will help in distinguishing the two conditions: 1. Dysphagia. 2. Painful cough. 3. Occasional tumefaction over the arytenoid. 4. Sharp pain on pressure along the posterior border of the thyroid cartilage. 5. The healthy arytenoid is not tilted forward on the affected one, and (according to Grabower) the healthy vocal cord does not during adduction pass across the median line toward the other side.

In addition, this affection of the crico-arytenoid joint is usually associated with (*a*) the existence or pre-existence of an acute pharyngeal catarrh; (*b*) laryngeal hyperemia; (*c*) a more or less pronounced feverish condition, and (*d*) extra-laryngeal manifestations of arthritis.

When recovery takes place more or less permanent disturbance of movement may remain in the form of partial or complete ankylosis. The difficulty of diagnosis of this condition is analogous to that which we should experience in distinguishing between an ankylosis of the shoulder joint and a paralysis of the deltoid, if we were not able to manipulate the patient's arm. It can often only be made when the vocal cord is fixed in a position which is atypical of nervous or muscular play. Permanent thickening, in addition to the abnormal fixation, would be suggestive of periarthritic inflammation. As a rule, it is safer to carefully exclude the possibility of any central or peripheral paralysis before ascribing the fixation of a vocal cord to complete ankylosis of the crico-arytenoid articulation. Even then other causes, such as syphilis, have to be carefully excluded.

The treatment of this rheumatic ankylosis is generally hopeless.

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X.

A CONSIDERATION OF THE PATHOLOGY OF THE
SO-CALLED NEUROTIC INFLAMMATIONS
OF THE MOUTH.

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Under this heading are comprised several forms of inflammation in which the characteristic phenomena appear to be brought about through the influence of the nervous system. In all instances, it is evident that the primary exciting cause lies beyond the nervous system, which is merely an intermediate agent in the production of the secondary manifestations. At times different primary causes result in the production of apparently identical clinical and pathologic phenomena. Thus an eruption of herpes may on one occasion occur in a manner suggestive of infection; at other times may accompany various febrile disturbances of the general system, or again, it may stand in apparent relation to new growths or sexual derangements.

It is to be hoped that the continued investigation of such conditions will eventually furnish characteristic clinical and anatomic distinctions, corresponding at least to the main classes of courses, such as specific parasites, chemical, physical, and mechanical agencies.

A critical examination of the literature of the so-called neurotic inflammations of the mouth and tongue, in connection with a study of my own cases leads me to group their phenomena under the following divisions.

1. Herpes zoster.
2. Herpes buccalis and lingualis.
Herpes facialis.
Erythema exsudativum multiforme, or bullosum.
3. Erythema nodosum.
Purpura rheumatica.
4. Stomatitis neurotica chronica of Jacobi.
5. Dermatitis herpetiformis of Duhring (of doubtful position).
6. Pemphigus.

Of the above conditions, the herpes forms, erythema nodosum and purpura rheumatica present comparatively well defined clinical and pathological characteristics. In the case, however, of erythema bullosum, dermatitis herpetiformis and stomatitis neurotica chronica, much confusion exists, both among the affections themselves, and with regard to their relation to pemphigus. It seems accordingly, advisable to present in the form of a comparative summary, their respective characterizations and also that of pemphigus as employed in the present paper.

Erythema bullosum of the oral mucous membrane is an angioneurotic inflammation, generally afebrile, characterized by the acute eruption of one or more vesicles upon a hyperemic basis, without characteristic grouping, enlarging rapidly by peripheral extension to form bullae of one to two centimeters in diameter, the contents of which are at first clear, later clouding, when they are evacuated by maceration and rupture of their epithelial covering, leaving a moderately sore, but not spontaneously painful base, which heals in from one to four weeks without a scar.

Dermatitis herpetiformis is a chronic, probably infectious disease, characterized by a more or less general eruption upon the skin and mucous membrane of lesions of a multi-form type, accompanied by pronounced burning or itching sensations, exhibiting a protracted course with temporary exacerbations and remissions, and attended by slight or no constitutional disturbance.

Stomatitis neurotica chronica is a chronic, afebrile af-

fection, occurring generally in neurasthenic individuals, characterized by a more or less general outbreak of vesicles and bullae upon the oral and lingual mucous membrane, preceded at times by local reddening, being somewhat painful but not pruritic, requiring several or many weeks to heal, and accompanied by various symptoms of nervous disturbance.

Pemphigus is a term applied to several, probably infectious and distinct affections, differing in their respective course and etiology, but exhibiting in common the clinical phenomena of an eruption of clear, nonpurulent bullae upon an unreddened, or very slightly reddened skin, or mucous membrane, in regular sequence, without angiogenic form, characteristic grouping, distribution or localization, attended by slight or no local subjective symptoms, exhibiting an acute onset and tendency to recurrence, and generally attended by marked disturbance of the general health.

The preceding characterizations may be regarded as representing type forms, and if only such existed, comparatively little difficulty would be experienced in assigning a given case to its proper place. As a matter of fact, however, numerous instances are encountered in a review of the literature which seem to stand upon the border line between typical conditions, without however, necessarily denoting a transition or connection between them. It seems on the one hand impossible to restrict still further the number of type forms, and on the other, inadvisable with our limited etiologic and pathologic information to attempt to add, on clinical grounds, to the existing terminology.

One source of confusion is due to the fact that various meanings have been attached to the terms herpes, pemphigus, etc., by different writers in their reports of cases, so that an attempt to class as herpes, or as pemphigus, all the conditions described under such designations would result in continual contradictions and hopeless perplexity. With our present knowledge, it is only by placing recorded observations under the types to which they present the closest affinity, irrespective of the original terms applied, that an orderly arrangement of data is possible. The labors of Unna, Rosenthal, Jacobi, and Liewkasiewicz, have done much toward reconciling apparently discordant observations, and dispelling the previously existing ob-

security in our conceptions, although no attempt has hitherto been made to consider all these conditions comprehensively in a single systematic treatise.

HERPES GROUP.

In the mouth as on the skin, two main types of herpes are found, zoster and facialis, to which a third, buccalis, may be added. Of these, herpes zoster presents the best marked characteristics, and stands quite alone as a well defined affection. Herpes facialis in the mouth occurs merely secondarily to, and in the immediate neighborhood of the labial eruption. Herpes buccalis (sive lingualis) in clinical aspects and course resembles herpes facialis, but is essentially an affection of the mucous membrane occurring independently of cutaneous lesions.

All these conditions are undoubtedly brought to pass through the agency of the nervous system in response to a definite irritant which may be of a parasitic, chemical, physical or mechanical nature. As will be shown, our knowledge of the etiology is as yet insufficient to justify a change in the present classification.

HERPES ZOSTER.

Herpes zoster of the buccal mucous membrane is characterized by the appearance of a vesicular eruption, generally unilateral, limited to a definite nervous territory, usually on the palate, uvula, gums and cheeks, never affecting the tonsils or pharynx, preceded by severe neuralgia of the region involved, but without special constitutional symptoms, lasting from two to four weeks and never exhibiting a recurrence.

The disease begins insidiously with slight constitutional disturbance, moderate feverishness in the evening, with headache and severe neuralgic pains in portions of the mouth supplied by the fifth cranial nerve. This period lasts in general three days, the region affected by the neuralgia becoming more and more sensitive to the touch, when the characteristic eruption appears. This is ushered in by a reddening of the mucous membrane along the course of the affected nerve, which is followed by the appearance of a series of vesicles arranged in linear fashion. Simulta-

neously, the neuralgia diminishes in intensity, and becomes more localized to the particular site of the eruption. After the outbreak of the first group of vesicles, a second or a third crop may arise in the vicinity. After a day or two, the vesicles exhibit a cloudiness of their contents, the epithelium becomes macerated and exfoliated, and the appearance is presented of superficial losses of substance. These heal slowly and generally require from fifteen to twenty days for complete healing.

The points of localization of herpes zoster in the mouth are, as stated, the regions supplied by the fifth cranial nerve—thus the palate, the gums, and the cheeks may be involved, while the tonsils, tongue and pharynx are not affected.

The special nerve fibres which may be involved are the following:

1. The anterior palatine and internal sphenopalatine nerves supplying the mucous membrane of the hard palate.

2. The alveolar branches of the posterior dental innervating the gums.

3. Branches of the buccal nerve supplying the mucous membrane of the cheeks.

4. The descending branches of the infraorbital over the posterior surface of the upper lip.

5. The middle and posterior palatine nerves supplying the mucous membrane of the soft palate and uvula.

6. The middle and anterior portions of the tongue supplied by the branch of the fifth.

Thus it will be seen that the posterior pharyngeal wall supplied by the pneumogastric, the base of the tongue and tonsils, which are innervated by the glossopharyngeus, are regions which escape in this affection.

In the great majority of cases, herpes zoster of the mouth is unilateral. So far as an examination of the literature indicates, but two instances have been observed of a bilateral involvement. In one of these (Lermoyez) the hard and soft palate, the gums, cheeks, and upper lip were symmetrically involved; in the other (Moers) these regions, together with the anterior portion of the tongue were affected. In both these cases, the posterior portion of the tongue, the tonsils and pharynx remained intact.

In general, the complications of zoster of the mouth are such as pertain to an involvement of the adjoining branches of the nerves involved. Thus, a simultaneous eruption may appear on the face, in the regions innervated by the nerves mentioned, such as the *alae nasi*, lower eyelid, cheek, external ear, lower jaw, and neighboring portions of the neck.

More serious complications have, however, rarely been observed within the mouth. Thus, paralysis of the affected half of the soft palate may remain, either permanently, or for a long time (Kaposi). Or, as a result of involvement of the posterior alveolar nerve, neuralgia of the teeth may remain, or a falling out of the teeth, and atrophy of the alveolar process occur. (M. Singer.)

The diagnosis of zoster of the mouth is readily made, if attention be given to its characteristic features, namely: the neuralgic character of the pain, the arrangement of the vesicles along definite nerve trunks, and the absence in the history of a similar attack previously. The conditions most simulating it are aphthae, the vesicles of epidemic stomatitis, herpes buccalis et pharyngis, the buccal lesions of impetigo contagiosa, and various forms of erythema multiforme.

The prognosis of zoster of the mouth is good, so far as indicated in recorded cases. Severe prostration may ensue, either directly from the attack, or as a result of prolonged trigeminal neuralgia, which has been observed to persist and interfere with the movements of mastication. (Kaposi.)

The histologic appearances of zoster of the mucous membrane of the mouth have not to my knowledge been described. Undoubtedly the conditions are similar to those obtaining on the skin, that is, there is in the first stage an exudation of clear fluid between the epithelium and derma (here the rete mucosa), which, in a few days becomes turbid from the advent of leucocytes. At this time a necrosis occurs of the epithelial cells covering the vesicles; softening and exfoliation ensue leaving the denuded rete mucosa.

The etiology of zoster is still obscure, although several facts seem to point to its infectious character in a certain number of instances. Thus, it occurs generally in spring and fall, at the time when the angioneurotic affections are

prone to appear. It has been found epidemic by Kaposi, who regards it as bearing at times a relation to pulmonary inflammations. In Unna's clinic an epidemic of zoster was observed after the admission of a patient with zoster, four other patients becoming also affected.

In many cases the local lesions are supposed to be due to trophic changes in the nerve, probably a neuritis which may be produced by factors acting either upon the ganglion or upon some part of its trunk. Such factors may be hemorrhages, trauma, inflammations, new formations, etc.

HERPES LABIALIS, BUCCALIS, AND PHARYNGIS.

These three terms designate respectively conditions characterized by the acute eruption of one or more non-contagious vesicles ranging in diameter from one to five mm. arranged in groups without definite relation to the peripheral nerve trunks, not attended by neuralgic pains or constitutional disturbance, lasting not more than a few days and exhibiting a tendency to recurrence at certain seasons of the year.

Although clinically, these forms of herpes are well characterized affections, we are at present in the dark regarding their etiology. This obscurity renders also impossible a satisfactory statement of their relation to herpes zoster and even of their relation to each other. The most reasonable view of their nature is that which regards them to be the result of an irritation affecting the peripheral twigs of the nerves in the given locality. It is impossible to say whether, as Baerensprung suggests, herpes labialis is a zoster limited to the terminal branches of the trigeminus, originating in an irritation of a peripheral ganglion, as for instance, the ganglion incisivum, or whether, on the contrary, it be due, on Gerhardt's hypothesis, to an irritation of the trigeminus nerve arising from compression by the accompanying blood vessels dilated during the general febrile state.

Without attempting a statement of the relation of these affections to herpes zoster, we may presume somewhat more in defining their relation to each other. Clinically, herpes buccalis and pharyngis appear to be one and the same thing, often merging into each other and exhibiting no points of distinction, other than that of localization.

Kaposi states that herpes labialis may be accompanied by an eruption of similar vesicles upon the mucous membrane of the tongue, palate and cheeks. Such an extensive distribution has not come under my observation but I have occasionally seen the vesicles of herpes labialis continued beyond the prolabium upon the mucous membrane for from two to three centimeters. While a typical eruption of herpes labialis may be accompanied by vesicles upon the mucous membrane of the mouth, I am not aware that a typical herpes buccalis or pharyngis has been found spreading to the neighboring skin.

The development, course, and termination of labial and of bucco-pharyngeal herpes are identical and will be described together.

The earliest symptoms are shown in the occurrence of a burning sensation, followed by an eruption of minute vesicles with translucent contents. If the eruption is upon the fauces or soft palate, the patient will often complain of a lump in the throat and pain on swallowing. If upon the cheeks, tongue, or lips, the subjective symptoms are as a rule slight. The vesicles enlarge in a few hours till their maximum size is attained, which is rarely greater than five millimeters in diameter. They then become opaque and exhibit a dull white surface which is easily rubbed off, showing loose shreds of epithelium bordering a red, raw looking floor. Each vesicle is surrounded by a reddened ring, one or more millimeters in diameter.

The burning sensation is more especially characteristic of herpes labialis, while in the bucco-pharyngeal conditions a sense of swelling and soreness is more common. In severe cases, I have found troublesome salivation, although gastro-intestinal disturbances were absent. Itching is sometimes complained of in the older vesicles. The amount of discomfort varies considerably. It is chiefly apparent during the mastication of solid food.

The vesicles may appear in successive crops for a day or two, so that one may find minute translucent ones adjoining larger and already macerated ones. This is especially apt to be the case in bucco-pharyngeal herpes.

The especial points of localization of bucco-pharyngeal herpes appear to be the pillars of the fauces and the soft palate. In these regions the vesicles are generally found

in greatest numbers extending from them in a more or less scattering fashion to the pharyngeal mucous membrane, or to the cheeks and tongue.

In herpes labialis, the prolabium is the part chiefly affected. From here, vesicles may extend upward to the alae nasi, or inward, upon the mucous membrane of the lip.

The arrangement of the vesicles in the groups is wholly irregular, and without reference to any determinable distribution of the nerves. The distribution of the groups is also irregular. The median line is more often crossed than not, and there is an entire absence of the symmetry seen in cases of bilateral zoster. The number of the vesicles varies greatly.

In all instances these forms of herpes are benign affections. The importance of herpes labialis in pneumonia and other febrile conditions as a prognostic sign has been previously overestimated, and is now known to possess no especial significance.

These forms of herpes are essentially recurrent affections, occurring often annually in the same individual. They also exhibit a tendency to recur at about the same time of year.

ERYTHEMA MULTIFORME.

Erythema multiforme exsudativum or bullosum of the mouth is characterized by the acute appearance upon the oral mucous membrane of one or more rounded hyperemic spots of irregular distribution, ranging in diameter from a few millimeters to one or two centimeters, the centre of each spot being within a few hours raised to form a minute vesicle by exsudation of fluid between the superficial epithelium and the rete mucosa, the vesicle rapidly enlarging by peripheral extension till its maximum size of one or two centimeters is reached, when necrosis and exfoliation of its epithelial surface occurs, leaving a sore, but not spontaneously painful base which heals in from one to four weeks without a scar.

In the majority of cases, the oral lesions of erythema multiforme exsudativum are simply the accompaniments of more conspicuous evidences of the affection upon the

skin. In such instances, the eruption is generally simultaneous in both localities, and the recognition of the condition within the mouth is readily afforded. In typical instances there appear upon the mucous membrane, one or more round areas, generally one-half to one centimeter in diameter (although they may be somewhat larger or smaller), of a dull red color, sharply limited at the margins. This stage of erythema passes within a few hours into that of exsudation. In the centre of these red areas a collection of clear fluid forms between the superficial epithelium and the rete mucosa, producing a vesicle, which rapidly enlarges to form a bulla with a maximum size of one to two centimeters, a conspicuous hyperemic areola still surrounding it. At this stage, which is attained within six to twenty-four hours from the first appearance of the vesicle, the clear fluid becomes gradually cloudy, and finally milky in appearance. the elevated epithelium undergoes necrosis and maceration, so that the continual friction and movement of the parts soon cause it to rupture and evacuate the contents. The rapidity with which the bulla ruptures varies with the amount of mechanical disturbance to which it is naturally subjected. Thus, upon the sides of the tongue and lips, it lasts from a few minutes to a few hours, while upon the soft palate, cheeks and fauces, I have seen individual vesicles remain unbroken twenty-four hours.

Immediately after the rupture of the vesicles their site is marked by round patches of whitened epithelium, loose and wrinkled in the centre, closely adherent at the margins. Gradually the epithelium becomes detached, leaving a marginal fringe, and exposing a dull red floor, which is the denuded rete mucosa. As a result of mechanical violence in the presence of microorganisms, this floor becomes covered with grayish puriform debris, consisting of the necrotic tissue cells and leucocytes, removal of which shows a raw looking, red, easily bleeding surface. This is the stage generally seen by the physician when the patient appears for treatment. The process of repair in the oral lesions commences normally simultaneously with the retrograde changes in the skin. The floor of the denuded area becomes cleaner, a closing in of the marginal epithelium appears, and perfect healing results without a scar.

Such is the usual course of the mucous lesions accompanying the cutaneous affection. Cases resembling the erythema iris of the skin do not appear to have been observed upon the oral mucous membrane, and in my own experience, where erythema iris of the skin is associated with buccal lesions, these invariably present the form of the simple bullosum type.

Hamilton⁶ describes the case of a young man subject to recurrent attacks of typical herpes iris of the skin in spring and autumn, accompanied by a shedding of the mucous membrane of the mouth in large yellowish white sheets, leaving here and there raw patches, the size of a split pea, particularly on the sides of the tongue. The tonsils were only slightly injected. The general condition showed fever, dry lips, great prostration. The only exciting causes discoverable were cigarette smoking, sewer gas and the local irritation of some weed.

While the typical phenomena of this affection constitute a fairly well-defined clinical and pathologic process, a number of vesicular and bullous eruptions presenting similar lesions limited to the oral mucous membrane have been described, in regard to the nature of which, considerable variance of opinion exists.

Rosenthal,³² in 1894, expressed the view that the local pemphigus of the mucous membrane of the mouth is mostly a variety of erythema multiforme exsudativum, and ought to be called erythema bullosum. "Whatever has been described as urticaria, herpes, etc., of the oral mucous membrane is mostly this erythema bullosum."

A valuable contribution to our knowledge of these isolated forms appeared in a paper by Liewkasiewicz,⁸ who describes as local manifestations of erythema multiforme exsudativum, an eruption occurring in two healthy men with but slight fever and local pain, in which the mucous membrane of the upper and lower lip, cheeks and gums presented superficial, rounded or irregular, millet to pea-sized losses of substance, with grayish, easily bleeding floor, the margins showing shreds of mucous membrane, bordered by a hyperemic zone. On the hard and soft palate were similar vesicles and losses of substance. In places, these lesions became confluent by peripheral extension. The duration of the affection was from three

to four weeks. Liewkasiewicz also considers the following cases to be examples of local erythema bullosum of the oral mucous membrane:

1. A case of Boylan,⁵ described as herpes of the mucous membrane, where a female was subject to recurrent attacks of vesicles on the soft palate and pillars of the fauces, the largest extending from the uvula to the tonsil. Each attack lasted a few days.

2. A case described by Mesnard as acute pemphigus, where a man was suddenly attacked by fever and an eruption of vesicles on the mucous membrane of the mouth, and later on the hands, rapidly healing.

3. A case of Jurasz.

4. A case described by Tortua as acute pemphigus.

5. Neumann's case of "aphthæ" of the oral and pharyngeal mucous membrane accompanying toxic erythema of the skin.

6. The "benign ulcer" of Heryng, where a large vesicle is situated upon the anterior pillar, always containing streptococci.

In my own experience, I have seen a case with manifestations analogous to Heryng's benign ulcer, and have repeatedly had an opportunity of observing the process from its beginning. On the mucous membrane of the cheek, opposite the lower canine tooth (which is to all appearances normal) a small sharply margined hyperemic spot appears, which is slightly painful. In the course of an hour a vesicle of pinhead size with clear contents appears in the centre of the hyperemic spot, rapidly enlarges, and in four or five hours has attained its maximum size of a split pea (about 1 cm. in diameter), at which time the contents are slightly cloudy. In twenty-four hours the vesicle has ruptured, and a superficial loss of substance is apparent, with grayish floor, and narrow hyperemic margin. This appearance lasts from three to five days, associated with considerable soreness, but no itching or spontaneous pain, when healing slowly begins, and regeneration is complete in two days more. It has repeatedly happened that after one ulcer has just healed, another vesicle would form in the immediate neighborhood and run an identical course. The outbreaks have generally occurred in the autumn without

known exciting cause. The patient is a healthy individual with moderately erythema nodosum neurotic tendencies.

The term erythema nodosum denotes an affection characterized by the occurrence in the tissues lying below the skin and mucous membrane, of one or more sharply limited exsudates, apparent to the touch as firm tender lumps or nodes which run an acute course, are associated often with fever and constitutional disturbances, and exhibit a tendency to recur.

In the oral cavity, erythema nodosum is a decidedly rare affection, and as a rule accompanies manifestations in the customary situations upon the extremities. In but one instance (Millard⁹), to my knowledge has it been reported as being found within the mouth alone, and even here, nodes appeared after a week upon the legs.

It generally occurs in persons of a rheumatic tendency, or in those who have had actual attacks of acute articular rheumatism. The onset is sudden, a few hours sufficing for the development of the nodes. These are single or multiple, generally few in number. Their size is usually about that of an almond. They have been found in the substance of the tongue and cheeks, apparently in the submucous cellular tissue, always forming a distinct, cyst-like prominence, not spontaneously painful, but extremely tender to the touch. The mucous membrane in the neighborhood has the rosy tint of inflammation (Millard⁹).

In uncomplicated cases, no especial local symptoms are present, the tongue being moist, salivation and fetor absent.

The duration of the intrabuccal nodes is probably the same as that of the subcutaneous ones. In the few cases reported, treatment was begun early and was followed by prompt recovery.

Occasionally, these nodes do not always run the benign course above depicted. Ulceration and necrosis have been known to occur.

The pathologic anatomy of the affection in its buccal manifestations is not known from any histologic examinations, but by analogy may be supposed to consist of a sharply circumscribed dilatation of a group of vessels in the submucous tissue, attended by an exsudation of fluid through their walls.

The diagnosis is to be made from abscesses and from cysts of the submucous tissue. The peculiar character of the pain, which is not spontaneous, but yet extreme on pressure, and the almost invariable association of subcutaneous nodules are sufficiently distinctive, although, in Millard's case, the diagnosis was not made until the characteristic nodes appeared upon the legs.

STOMATITIS NEUROTICA CHRONICA. (JACOBI.)

Chronic neurotic stomatitis is an afebrile affection occurring in connection with neurasthenia, or nervous disturbances, characterized by a sudden, more or less general outbreak of clear vesicles and bullae upon the mucous membrane of the oral cavity, preceded at times by local reddening, being somewhat painful, but not attended by paresthesiæ, and requiring several or many weeks to heal.

Although the influence of nervous disturbances in the production of vesicular and bullous affections of the skin and mucous membrane has long been known, yet A. Jacobi¹⁰ is justly entitled to the credit of first clearly recognizing the desirability of separating from what had previously gone under the name of herpes and pemphigus, a group of phenomena with the above characterization. Not only is such a group apparently deserving of distinct recognition, but the removal of them from herpes and pemphigus has greatly simplified our conceptions of these affections.

Jacobi's account is based upon the following three cases observed by him, in connection with a review of several recorded in literature variously as herpes and pemphigus.

Case 1. A neurotic male, subject for many years to recurrent attacks characterized by the sudden eruption of bullæ, sometimes on the tongue, more often on the cheeks, frequently in the lower portions, soon bursting, leaving whitish ulcers, which remain a long time painful. He had been subject to these attacks since 13 years of age, and had previously been troubled with urticaria.

Case 2. A female with a neurotic family history, herself also neurotic and in poor health, had been subject since 13 years of age to attacks of nausea, vertigo, or dysmenorrhea, often accompanied by an eruption of vesi-

cles in the mouth preceded by local reddening, the vesicles never numerous, soon bursting, and leaving a sore surface of a grayish white color, somewhat harder to the touch than the surrounding tissue, apparently from a fibrinous exsudate, and requiring many weeks to heal.

Case 3. A male, 31 years of age, in good general health, began three years ago, without known cause, to have attacks of a pemphigus-like eruption affecting the whole interior of the mouth, with but few remissions, and associated with neurotic symptoms such as headache, gastro-intestinal disturbances, and copious perspiration about the arms.

The affection is rare and appears to have been previously described as herpes or pemphigus from nervous causes. Thus, Flatow's case of chronic recurrent herpes of the mouth presented similar manifestations of vesicles lasting from eight to twenty-eight days, apparently due to mental depression and nervous irritation. Also the cases reported by Dickson and Gilibert, by Pick, by Mosler,¹⁶ possibly also those of Kirchner,¹² Landgraf,¹³ Kopp,¹⁴ Boer,¹⁵ Mandelstamm and Miller,^{33, 31} seem to belong here.

All the cases exhibited, in general, symptoms of the same nature, namely: Neurasthenia, headaches, nausea, gastric disturbances, constipation, or diarrhea, local perspiration, normal temperature, and the slow healing of large vesicles or bullae. A marked family predisposition was present in some cases, reminding one of Carl Blumer's (cited in 10) hereditary disposition to vesiculation, called by Valentine¹⁰ hereditary dermatitis bullosa, by Kobner¹⁰ epidermolysis bullosa hereditaria, by Klebs dysplasia vasorum. The latter found the blood vessels in a condition resembling that of hemophilia, consisting down to the capillaries of cells of embryonal structure, predisposing to hemorrhage and exsudation. Some of the cases described by Blumer and others, Goldscheider,¹⁰ Ford,¹⁰ Hebra,¹⁰ Kobner,¹⁰ were complicated by urticaria, swelling of the lymph vessels and glands, general malaise, when the eruption was extensive, tumefaction and reddening of the skin surrounding the vesicles, hemorrhage into, or suppuration of the vesicles, and purpura.

DERMATITIS HERPETIFORMIS. (DUHRING.)

Dermatitis herpetiformis is a chronic, probably infectious disease characterized by more or less general eruption of a multiform type, appearing upon the skin and mucous membranes, attended with burning or itching sensations, exhibiting intervals of temporary freedom, followed by a recurrence of the symptoms.

This condition, first clearly defined by Duhring, forms by no means a simple clinical picture, and its establishment as a distinct affection has been opposed by Kaposi and others. For our present purposes a discussion of its nature is not necessary, and we may therefore confine ourselves to a description of the phenomena on the part of the oral mucous membrane.

We distinguish with Unna a mild and a severe form. Although the clinical picture of these two types appears to vary widely, histologic examination of their respective lesions shows an essential pathologic identity. In both forms the pathologic anatomy consists in an edema and cellular infiltration corresponding to a definite vascular territory, together with a perfectly passive behavior of the epithelium, which exhibits only edema and interepithelial vesicles, or is completely thrown off by a serous exudate, and finally, in a complete absence of leucocytes. The fact that in one series of cases the serous transudation leads to swelling of the epithelium, and in another series to epithelial exfoliation, depends probably upon a lesser degree of firmness, in the latter case, in the connection between the epithelium and papillary layer. In both instances the same angioneurotic irritant exists, which in the case of the better constituted membranes leads to localized serous inflammation, and in the other case to exfoliation of the epithelium.

PEMPHIGUS.

Recent investigations render it probable that the conditions to which the term pemphigus is applied do not constitute a distinct bullous affection, but represent a small group of diseases the members of which resemble each other as regards the appearance of the eruption, but which

differ greatly in their respective course, severity, and probable etiology. (Unna.)

It is to be defined for the present on the basis of its clinical appearances. We may, therefore (Unna), consider as examples of pemphigus those bullous affections, where clear non-purulent vesicles appear upon unreddened or very slightly reddened skin or mucous membrane in irregular sequence, singly or in large numbers, without characteristic grouping distribution or localization attended by slight or no local subjective symptoms, exhibiting an acute onset and tendency to recurrence.

Pemphigus may be excluded if reddening is present at the site of or around the bullæ, if these exhibit angiogenic symmetry or grouping, if their contents are primarily purulent, and if they are attended by much pain or itching.

Probably all the forms of pemphigus are parasitic in nature, and due to different microorganisms. In regard to this, however, we have no definite knowledge. On the basis of their course and severity, we may distinguish the following forms:

Pemphigus acutus benignus afebrilis is defined as an afebrile affection exhibiting an eruption composed of clear vesicles varying in size from a pea to a lentil, covering in a short time a great part of the body, the contents of these becoming, in a few days, cloudy but not purulent, and rapidly drying.

Although stated to occur in the mouth, I find no special description of the eruption in that situation. It is stated by Unna to be rare in adults, common in children.

It is most closely allied to *impetigo contagiosa*, and is chiefly distinguished by the greater thickness of the covering of the vesicles, their clear contents, longer persistence, and absence of characteristic topography. We have no anatomic knowledge of the affection.

Pemphigus acutus malignus febrilis is an infectious disease characterized by the appearance over the whole body of large and small vesicles containing occasionally cloudy contents, leaving after exfoliation, raw, moist patches, which heal slowly; the constitutional symptoms are those of severe general sepsis, and the termination is often fatal.

We have no anatomic knowledge of the lesions on the mucous membranes.

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XI.

THE ETIOLOGY OF MALIGNANT TUMORS.

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The darkest chapter in the pathology of malignant tumors is still their etiology. Heredity, upon which formerly entirely too much stress was laid, in many cases cannot be proven, although often it is clearly in evidence, and Verneuil has differentiated between the carcinoma which appears on the basis of an hereditary predisposition, and which is especially liable to recurrence, and the relatively benign non-hereditary form.

It is naturally not to be denied that just as anomalies of the circulatory system can be transmitted, so that, e. g., the son of a father who frequently suffered from epistaxis and who died suddenly as the result of a hemorrhage from the nose, should in turn suffer from a teleangiectatic sarcoma of the nose, I say, similarly many peculiarities and anomalies of the epithelium and endothelium and the pigment should be inherited and play a role in the development of a carcinoma of this or that form. Yet from this kind of a predisposition toward an hereditary origin of malignant tumors, it is still a big jump to the hereditary attainting of an entire family, which ordinarily and perhaps always cannot come about without the aid of an infectious factor.

Hamilton has reported a remarkable case which speaks for heredity. A simple chronic laryngitis was found by Hamilton through the laryngoscopic examination of a coachman, age 41, who for 20 years had frequently become hoarse and voiceless, but who was well built and non-syphilitic, and whose mother had died of cancer of the breast. It was not treated locally, however. Six and one-half months later, after a period of three weeks of especially good health, there was found an ulcerating carcinomatous new growth of the larynx with glandular enlargements in the neck. But does there not come into

consideration here, in addition to the hereditary predisposition and the chronic catarrh, an acute febrile disease with a malignant new-growth as a sequel, such as influenza, which has lately often been accused and is often scarcely observed empirically.

Some authors, as V. Schrötter, disregard the use or misuse of tobacco and alcohol, while others, as Arslon and Lucas Championnière, lay stress on it. No certain ground has been found for the often emphasized preference of the male. Carcinoma, which usually attacks the old, has been observed by V. Schrötter in a ten-year-old and even three-year-old girl, while sarcoma, the enemy of the young, has been observed by Halstead in a child 14 months old.

According to Thiersch, the chimney-sweepers' cancer, often considered a purely local affection, paraffin-workers' cancer and the cancer of the lips cannot be caused by the influence of a chronic mechanical irritation without an additional personal factor, and we must agree with Danziger that the statement of Kretschmann that carcinomata can arise from repeated rubbing and scratching of the auditory canal is not defensible.

The influence of trauma in the causing of malignant new growths has been overestimated by Verneuil, Nelaton and others, although we may admit with Richet the origin of an enchondroma of the septum nasi through this means. In a case of Delstanche, where a 53-year-old tinker, after a blow on the back of the head, suffered with an intranasal fracture, through contrecoup and considerable loss of blood, there arose 4 years later an epithelioma of the right nasal cavity. Yet this interesting case is not clear in all respects, as nothing is known of the former condition of the nose. The pertinent observation of Milligan that epitheliomata of the auricle often appear after trauma is incomplete. (Journ. of Laryng., 1899, page 28.)

Wilkin reports the following case: "Widow, 61 years old, no carcinoma in family, severe blow near left ear 12 months before, paralysis of the facial nerve, spontaneous hemorrhage from ear, fetid pus, finally epithelioma, internal organs healthy, but urine thick and foul without sugar or albumin." Even this interesting observation is

in so far incomplete that there is no record of the condition of the ear before the injury and therefore it is not known whether or not there was already a discharge from the ear or one of the cavities of the head and thus this factor enters into the cause.

There is a clearer communication from Haug, where a sarcoma developed after wounding the middle ear by a hairpin, in a girl of 18, who for years had had an aural discharge following pertussis and scarlatina; further an observation of Hennebert and Delstanche in regard to a man of 38 years who in his 12th year ran a slate pencil into his ear which was removed only after excision of the auricle, there remaining a long time a purulent fistula, from which 26 years later an epithelioma arose. (*Annal. des Malad. de l'or*, '96, 2, P. 161.)

In my own practice I have seen three similar cases.

Case I. Similar to Delstanche's first case; malignant tumor naso-pharyngeal cavity. Postman, M., age about 50 years, came to me in fall of 1885 on account of disturbance in hearing. In the nasopharynx was a non-ulcerating tumor, the size of a walnut, which felt mature, and sprang from the pharyngeal wall; no glandular enlargement in the neck. He had suffered for years from a purulent, somewhat fetid nasal catarrh, and a short time before had been knocked down by some runaway oxen he had met in a narrow street, so that the back of his head struck the pavement. No syphilis. Removal of the tumor by means of a snare, with little hemorrhage; several recurrences similarly treated; nasal catarrh treated by lavage; later swelling of the submaxillary gland to a large hard mass, and new tumor masses in the throat, on account of which a radical resection was made by incision from without, in a hospital; death shortly followed.

Case II. Ulcus carcinomatosus of the external nose. H., age 48, land owner in a marshy country near Danzig, non-syphilitic, consulted me in the summer of '89 about a disease in the region of the nose and cheek on the left side, which appeared after a kick as a swelling, then changed into an ulcer, which had been treated in Danzig as lupus, by application of lunar caustic, but which had steadily progressed; the hypertrophy of the walls, the kind of evolution and the age of the patient

spoke, however, for a carcinomatous disease. For years there was a purulent catarrh of the nose, and, of both maxillary cavities, as shown by the perforations of the alveolar apophyses. After an experimental treatment of the nasal and maxillary discharge at the request of the patient, to establish a possible influence on that lesion, had not been of any value, the patient took my advice and entered the clinic of Professor V. Bergman, where it was quickly shown that the discharge could not play a role in the process, and the ulcer was extirpated and the defect closed by a plastic operation. Soon there was a return, a progress of the lesion, then repeated operations, I think about three, with no lasting result, and death.

Case III. Malignant tumor of pharynx. M., age 70, an unsuccessful merchant, came in June, '91, with a non-ulcerating tumor, size of one-half walnut, of firm consistency, on the posterior wall of the laryngo-pharyngeal cavity which could be seen by simply drawing the tongue forward, and whose origin was referred by the patient to the fact that several years before he had been caught by the neck between the buffeters of locomotives. No glandular enlargement. For a long time there was purulent discharge from the nose and throat, and after the perforation of the alveolar process, there appeared a very fetid discharge from the maxillary cavity. Further treatment in a hospital by tracheotomy (?) or extirpation of the tumor (?), and soon death.

In these three cases, as in other observations noted in the literature above, there is the influence of a severe trauma, indirect in case I, direct in cases II and III, as well as the presence of a purulent catarrh of mild degree in cases I and II, and of severe grade in case III. If, in opposition to the histories it should be said that the purulent catarrh noticed in my cases had been caused by the trauma present and the laceration of the tissue due to the growth of the tumor, an opinion of such a kind, however probable in other cases would be inadmissible in case III, for it is self evident, disregarding all other proofs, that a discharge from the maxillary sinus could never arise from a squeezing of the neck.

It should be the effort of all examinations as to a traumatic causation of malignant tumors in the region of the

head and pharyngeal organs to establish whether or not there were present then or had been at the time of the injury a discharge from the upper respiratory passages or ear. It is perhaps not now too bold a supposition to claim that, as a traumatic osteomyelitis of the upper portion of the thigh, or a sympathetic ophthalmia (Schmidt-Rimpler, Ziem) may arise only in the presence of infectious germs circulating in the blood or a purulent process in the vicinity of the affected part, so also a malignant tumor appearing after a trauma demands the intervention of a more or less active infectious irritation—in opposition to the above noted, simpler but insufficient views of Verneuil, Nelaton, Richet, etc. As in the foregoing cases, the malignant new growth arose only because there was already present a purulent process in the near vicinity, so in another series of observations. infectious diseases in addition to chronic catarrhs caused the production of the malignant new growth. So can, as has been long known, (1) syphilis, of which I can quote two cases in my own practice; (2) erysipelas which, in a case of Verneuil, caused an epithelioma of the maxillary sinus the size of a hen's egg in a woman of 57 years, a case which according to our present ideas must be explained by supposing the pre-existence of an old empyema which gave rise to the erysipelas which in its turn either gave rise to the tumor or at least promoted its origin; (3) influenza, according to the observations of Poncet, F. Semon, Ward, Hubbard, Halsted, Dench, Middlemas Hunt and Jakin; (4) according to Logan, typhoidal diseases; (5) malaria probably, considering the wonderful cures by arsenic of even inoperable new growths reported by Sendziak, Spitzer, Bronner, Alexander, B. Fränkel, Gluck, etc.; (6) as has been clearly shown in the foregoing, fetid, purulent catarrhs are of especial importance in the genesis of malignant tumors, as well as on other mucous membranes as that of the upper respiratory passage and the middle ear.

Unfortunately there are very few sufficient, systematic investigations on the state of the mucous membranes of the nose, naso-pharynx, pharynx and larynx in tumor formation in these organs, since the interest of the observer seems to have almost completely centered upon the character of the tumor itself. Of course, it is not the

question whether with a spontaneous or operative infection of a malignant tumor there is also present a purulent and ichorous catarrh of the mucous membrane, but whether or not there was a purulent infection of the mucous membrane in the first stages of or antecedent to the new growth. In reference to this we have the literature of Pepper (1879), Butlin, Ziegler, Dreyfuss, Ziem (1892), Reinhard, Posth, Meyes, Onodi, Douglass, Weil, Hubbard, Day, Halsted, Walkowitsch, and Hengst, yet only in the observations of Pepper, Day, Dreyfuss, Halsted and Walkowitsch is it clearly stated—although it is very probable for almost all, especially that of Reinhard—that there was a primary, chronic, fetid discharge or affection of the nose or neighboring cavities, and that, as Dreyfuss expresses it, there existed probably, “*une connexion causale entre l’inflammation chronique et l’apparition du néoplasme malin, connexion du meme genre que celle dont Hauser et Rosenhain ont démontré l’existence dans les affections chroniques de l’estomac.**”

Another case, which belongs here, but which unfortunately has not been completely observed, is the following: A girl about 23 years old, from the vicinity of Danzig, consulted me in the summer of '95 in regard to a disturbance in the motility of the vocal cords connected with a malignant tumor of the thyroid, and asked whether it was a case of cancer since, as it is shown, cancer often appears in her swampy neighborhood. For a long time she had suffered from a purulent discharge from the nose. The patient was operated on in a hospital and soon died. Whether there had already been a swelling of the thyroid, and because of what factor it had finally become larger, was not noticed, which is all the more unfortunate since, according to Poncet, malignant tumors of the thyroid arise only on a basis of struma, while on the other hand a thyroiditis caused by an infectious condition as a discharge from the nose (Kraske, 1889), typhoid fever (Gieniot, 1898) and the like, very often precede a struma. Moreover, 18 cases of tumor of the ears, in addition to the 11

* A causal connection between the chronic inflammation and the appearance of the neoplasm: a connection of the same kind as that shown by Hauser and Rosenhain in the chronic affections of the stomach.

collected by V. Kretschmann in 1887, have been preceded by a primary, usually chronic, and very fetid discharge, as also in the cases of Lèmccke, Danziger, Gruber (5), Story, Kirchner, Gradenigo, Milligan (2), Hamon du Fougeray, Vali, Whiting, Cheatle, Wagget and Robinson which are unexplained or referred to other causes, e. g., degenerated warts, eczema of the auditory canal, trauma and the like, and lastly the few cases of unobserved malignant tumors of the ears. It is, naturally, usually easier to explain these things in the ear than in nasal and laryngeal affections, because (1) it is in most cases a very simple thing to observe a discharge from the ear, and (2) a disease of this kind seems even to many persons of the lower classes and moderate intellectuality to be of more importance and to demand attention, since (1) in taking the history of nose and throat affections, we often hear the statement that the nose is entirely well, even when a discharge of considerable amount and fetid character is found at the moment of examination, and (2) the recognition of a discharge from the nose and neighboring sinuses is often not to be had even with anterior rhinoscopy, in spite of the contrary belief of Prof. Friederich of Kiel, or posterior rhinoscopy or transillumination or some similar method.

If we should collect all the cases of malignant tumors of the nose, throat or larynx, which have been reported and should consider that in all cases where a discharge from the first air passages was not found by the rhinoscopic method or transillumination or where the history was negative, that in these cases a discharge actually was not present, yet in the far greater per cent. of the malignant tumors of the ear there would be found the influence of a primary discharge in the nose or throat, though perhaps not clearly manifest. It can not be sufficiently emphasized to pay, in the future, the fullest attention to this very important condition and in every case of tumor of the organs of the head, face, temple, etc., as well as of the throat, whether it be a benign or undegenerated malignant, to establish by repeated and most careful and searching investigations whether there was present at the same time a discharge from the upper air passages, and when it first appeared. Furthermore, as I stated nine years ago, there are patients in whom on account of lavage of the

nose by means of a spray, there appears scarcely a trace of discharge, and the nose seems to be free from pus, when by merely syringing out the antrum of Highmore often a quantity of pus is brought to light; furthermore, there are patients in whom lavage of the maxillary sinus through the lower nasal passage reveals nothing, but will through the alveolar process (Ziem. *Monatsch. f. Ohrenh.* '93, p. 355) finally, the case of Trilat of a tumor of the antrum where a puncture was made with no result in spite of irrigation (Cit. in *Jour. of Laryng.*, '98, p. 330) is not convincing for the absence of a discharge, and in the numerous cases of empyema of the antrum observed by me, I have seen only one where pus appeared at once on puncturing the alveolar process, for as happened to me in Alexandrien in 1881, when a puncture was made of my antrum, although it was full of pus, none appeared, just because I had neglected to provide a water injection. Considering everything, the presence of a discharge from the nasal or maxillary sinus could well be affirmed.

The further study of the sinus diseases will be especially fruitful in regard to the pathology of tumors of the head and throat organs. If now we are to consider the etiology of benign tumors of this neighborhood we have observations which a decade before would have been laughed at. Lennox Brown lately has recalled a case formerly described by him where after removal of adenoid vegetations a papilloma of the larynx disappeared by itself. (*Jour. of Laryng.*, '99, 295.) According to an observation of Grünwald, a tumor of the larynx was caused by a purulent sphenoidal sinusitis. Baumgarten has reported a case of twins with papilloma of the larynx, which in his opinion was caused by an infection of the nose during birth. (*Monatsch. f. Ohrenh.*, '98, p. 444.) I myself in the latter part of Dec., '96, removed with the scissors a papilloma from the larynx of a 20-year-old mill hand, the return of which necessitated a laryngotomy, while its return probably, or at least possibly, could have been prevented if the patient had permitted me to carry out a treatment for a complicating purulent affection of the antrum.

That in the origin of malignant tumors, infectious factors must play an invariable role has often been

asserted by Lucas-Championnière, but especially in 1889, when in agreement with Arnaudet and other doctors of Normandy in regard to cider diluted with impure drinking water as a carrier of infection, he showed—basing his statement on the fact that in certain regions of Normandy cancer is preponderant—that in the department of Oise the percentage of total mortality due to cancer is 10 per cent. to 15 per cent., while at Paris it is only 4 per cent. Lucas-Championnière is especially of the opinion that alcoholism predisposes (Journ. de Med. et de Clin., '89, p. 289). Although only malignant tumors of the mouth (tonsils) and oro-pharynx can be caused by infectious or parasitic agents carried in drinking water after they have settled down upon a mucous membrane which has a weakened resistance and has a catarrhal affection, yet it has apparently some weight to refer to this method of origin in tumors of the larynx and trachea and especially of the nose and naso-pharynx, since it is not believed that the agent taken in with the water is disseminated by the blood and locates itself *secondarily* in the air passages—a belief which does not readily coincide with the frequent *primary* carcinoma of the air passages. Among the 125 malignant tumors which have been reported by Stetter, Schmiegelow, Gerber, B. Fränkel, Gottstein, Kayser and Bourowicz, to which I add 11 observed by myself, 37 cases, i. e., about 30 per cent. are of the nose and nasopharynx, and it is here certainly more plausible to think of an infection by inhalation. Yet in either way, whether the virus effects an entrance into the body in the latter way or by means of the digestive tract, the enormous difference in the geographical distribution of cancer, according to some recent valuable but unfortunately scant statistics, is of importance and here perhaps is at last to be found a path in the darkness of the etiology of malignant tumors. There have been treated as follows:

- | | |
|-------------------------------------|--|
| (1) Schmiegelow, Copenhagen (1887), | 718 patients, of whom 5 were malignant tumors. |
| (2) Stetter, Königsberg. | 3124 patients, 1 malignant tumor. |
| (3) Gerber “ | 6339 “ 15 “ “ |
| (4) Bourowicz, Krakau. | 3135 “ 52 “ “ |
| (5) Gottstein, Kayser, Breslau, | 7067 “ 22 “ “ |
| (6) B. Fränkel, Berlin. | 27500 “ 20 “ “ |

So that of all patients treated for affections of the air passages and the oropharynx the proportion of malignant tumors was

In Berlin 0.07 per cent.

In Königsberg 0.17 per cent.

In Breslau 0.31 per cent.

In Copenhagen 0.70 per cent.

In Krakau 1.66 per cent.

It is very probable that the total number of nasal, pharyngeal and throat affections treated in the clinics and polyclinics of the various mentioned cities when taken together would give a somewhat different percentage of malignant diseases for the one or the other city; but the unmistakable difference in the number of malignant tumors observed at Berlin, Copenhagen and Krakau, can not be absolutely ascribed to such an external circumstance—an accident as it were. In explanation of this fact, we might think of ethnical and telluric conditions—ethnical in the sense that the inhabitants of Copenhagen and Krakau consult a physician only when very sick, just as when I was an assistant at the Pathologico-Anatomic Institute at Rostock a number of especially interesting subjects were seen post-mortem, because the Mecklenburgers came to the hospital for only the most severe cases—telluric, considering the marshy, damp soil of Denmark, and especially Poland, the swamps, forests of reeds and morasses of Galicia, the breeding spot of rhinoscleroma, Störck's blenorrrhea, trachoma, ague, and other diseases, causing the majority of cases of cataract and associated with miasma. The last factor is probably the usual one and the larger part of the above named diseases can be referred to the inhalation of virus, to the influence of a swamp-miasma—or whatever it now may be called—on the nose and then the upper air passages, although the possibility, as shown by myself in 1885, of acquiring ague through the digestive apparatus naturally cannot be denied. It would be proper to observe whether malignant tumors of the respiratory apparatus are relatively in excess in other swampy countries as well as Galicia. According to Guye's observations, benign neoplasms, such as nasal polypi, seem to depend partially on climate and telluric conditions as they frequently appear in certain regions of Hol-

land, (*Annales des Malad. de l'or.* '95, page 521): what is true for benign tumors must probably be true for malignant also, especially when we consider the actuality, but scarcely doubted possibility of the transformation of benign to malignant tumors (Metaschematism of C. Hüter), in regard to which more or less pertinent and interesting observations have been made by surgeons like Hüter, Poncet, etc., as well as a number of specialists like L. Bayer, Barth, Fink, Stork, H. Mackenzie, Phillips, etc.

Since Virchow has shown by the most comprehensive examinations that foreign tissues and structures never appear in the human body in tumors, it seems as C. Hüter and Klebs have lately shown, that the formerly well-beloved parasitic theory, where it was especially thought of zooparasites, has lost all foundation: and it is questionable whether we should think of a zooparasite in the traffic in horses, which has lately been considered by some authors as etiologic for many sarcomata, instead of simply a discharge from the upper air passages caused by the vapor in the stable atmosphere.

In spite of the greatly differing opinions of Virchow, Billroth and Hüter in regard to the etiology of tumors, they agree in the similarity of tumor formation and inflammatory processes which are of such a kind that transition often occurs from one to the other, especially in lymphomata and sarcomata, as well as that origin and formation of new blood vessels can be well demonstrated in the origin of the first tumor nodule as in inflammation. These analogies can be carried still further since (1) a purulent catarrh of the upper air passages is not infrequently accompanied by a slight, often unobserved fever, chilling especially toward the evening, anorexia, a high degree of emaciation, grayish color in the face and other appearances suggestive of malaria, while similar appearances of cachexia are present even in the earlier stages of carcinoma; (2) Exuberant growth of epidermoidal tissue as in new growths is also found in acute infectious diseases of the hair and nails as also is the destruction of the otherwise firm dental substance, in the course of chronic febrile processes; (3) Hemorrhages are observed in the beginning of an acute infectious disease, especially influenza, and also in the beginning of a malignant tumor

of the upper respiratory passage, especially the nose; (4) Acute multiple malignant tumors, suggestive of an acute infectious disease, are seen as in a case of Billroth in which a quickly developing sarcoma of the abdomen was in the beginning considered a boil, and the patient, three months after the appearance of the first tumor completely covered with sarcomata, died of sarcoma of the lungs (Allgem. Chir. Pathologie. 5 Aufl. 1871, p. 620), so that here we can speak of an acute sarcomatosis; (5) The appearance noted above of a struma following a thyroiditis, and on the other hand the appearance of a carcinoma on the basis of a simple struma give the greatest possible proof for the similarity or unity of both processes, considering the *inflammatory diathesis* spoken of by Virchow in regard to tumor formation.

But Danziger is right when he says that in many organs the presence of a chronic catarrh is not sufficient for the origin of a malignant new-growth, because then when we consider the great distribution of discharge from the ear, the rarity of carcinoma of the ear would not be explainable. There must be an especial local reaction of the individual tissues of the different parts of the body to tumor formation, which is possibly due to the differences of the individual structures in richness in blood vessels and glands, with which the outer and middle ear are usually much more scantily supplied than the naso-pharynx, the female breast, the cervix uteri and other sites of predilection of malignant tumors. Of especial importance in this connection is a long and permanent stasis with its consequences on the evolution of tissues as the development of a cancer of the tracheal glands during pregnancy, of carcinomata of the mammary glands and uterus in subinvolution of the latter following lack of milk as well as carcinomatous affection following a traumatic stasis, of course with the presence of the infectious factor in the neighborhood, as my three cases reported above show.

The local return of a malignant tumor, which according to Hüter is heretofore unexplained, may perhaps be simply explained by the theory that a chronic feverish process, a malaria, an untreated purulent catarrh, etc., was overlooked by the operator, as was the case in my two patients reported, and after the patient was operated on

by a skilful hand, he was taken back to his swampy home where he died through the chronicity of his purulent catarrh under these circumstances; as could have been empirically predicted, since the operation only added a new and more circuitous trauma to that already present, on account of that malaria-like dyscrasia of healing, characterized by the discharge from the mucous membrane. Just so a sarcoma of the ear which, according to the observation of Cheatle, after the operation grew to the size of a child's head, might possibly, may probably, have been cured without operation by treating the discharge from the ear and the nose, and placing the patient in favorable condition, as the irritability of the tissues, here plainly expressed, can be considered possible only in a body with a febrile disease. Middlemas Hunt has seen a partial spontaneous shrinking of a papilloma of the larynx in a girl, living in wretched environments, as soon as she was sent to the fresh country air, with, however, a very rapid relapse of the condition, quickly leading to suffocation when she returned to her damp city home and the purulent catarrh of the upper air passage probably already present received an acute exacerbation. Although malignant tumors declared inoperable by distinguished surgeons on account of their extension have been cured by the internal administration of arsenic in other, seemingly similar cases, success has not been achieved, it would therefore be well to try whether a simultaneous treatment of the complicating purulent catarrh and atmospheric changes might not bring help. In none of the published reports on the sickness of Kaiser Frederick have I found any intimation whether or not one of the causes of his affection was a purulent affection of the upper air passages, for the Kaiser has been frequently a sufferer from catarrhal affection. Residence in the south, in sunny Egypt and elsewhere, or in the green forest near the Austrian border cannot of itself alone, as I know from my own experience with empyema of the maxillary sinus, always remove a purulent catarrh of the upper air passages. On the other hand, a case of inoperable sarcoma of the ear in a boy 9 years old, reported by Prof. Gruber, shows a want of influence by the fresh air of his home, the fresh air of Jossy in Galicia, which very likely only caused the preceding febrile affection and the tumor formation.

We have summed up the facts which can be adduced in support of this theory. Perhaps it will be derided and considered a dream, just as once, as an example from the far past and another land, a notable example of the unperishability of genius—just like the hypothesis of Herodotus, the spy of the Greeks, whether founded on inspiration or careful observation, meditation and combination, about the significance of shell-fish found on the rocky ledges of Egypt as an indication that there was once a bay there covering the delta, was regarded as a dream, but which more than 2000 years later has again been put forth by Buffon and is now considered an actual fact. Perhaps my theory will not be accepted, yet, most assuredly, as Hüter says in the characteristic style of that investigator, whoever throws light upon the darkness of the etiology of malignant tumors, so that it is possible to remove them in their incipency or to deprive them of their malignancy in that phase of their development, will rear for himself a monument *aere perennius* in the history of mankind and will send his name down to remotest posterity as the most notable forever. But we must also always think of him whose sorrowful story which the evolution of carcinoma always recalls awakened renewed interest and whose heavenly form has been crowned by mankind with a deeper and more lasting sympathy than any other of the great.

XII.

LARYNGEAL DISTURBANCES IN THE DISEASES OF THE CENTRAL NERVOUS SYSTEM WITH SPECIAL CONSIDERATION OF LARYN- GEAL DISTURBANCES IN TABES DORSALIS.

BY DR. JOHANN SENDZIAK,

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TRANSLATED

BY PHILIP VON PHUL, M. D.,

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In order to better understand the laryngeal disturbances which are met with in diseases of the central nervous system, I will give a short resumé of the present status of our knowledge regarding the anatomy and physiology of the innervation of the larynx.* Fifteen years ago it was thought that the only center of origin of the innervation of the larynx was the medulla oblongata, where the nuclei of both the vagus and spinal accessory are found.

It was not until 1884 that H. Krause,³ for the first time, proved experimentally, that in dogs the phonetic center of the larynx is located in the cortical portion of the brain. This exceedingly important discovery, among others, was moreover confirmed by Horsley and Semon, in monkeys. In all probability this center is also to be found in man. In dogs it is symmetrically placed in each hemisphere in the outer portion of the gyrus prefrontalis (præcrucialis, Owen) and at the base of the gyrus frontalis ascendens in monkeys. An irritation in this region produces a bilateral approximation of the vocal cords (adduction).

*In preparing this general resumé I have consulted principally the excellent works of Semon,¹ Luc¹⁹ and Lermoyez.²

In addition to this, Masini⁴ suspects the presence of centers beneath the cortex. Onodi⁵ places his center for the production of voice behind the corpora quadrigmina. This is, however, not as yet proved, and in fact the latest control experiments of Klemperer⁶, as also the latest of Grabower⁷ deny the existence of Onodi's center.

Besides the center of phonation in the cortex of the brain in dogs* there is found, as was proved experimentally in the year 1895 by Risien Russell⁹, and before him (in cats) by Horsley and Semon, in each hemisphere a symmetrically placed respiratory center. It lies anterior to, and below the center of phonation. An irritation in this region calls forth a double sided separation of the vocal cords.

As regards the center for the larynx in the medulla oblongata we are indebted for our knowledge of its existence to the untiring labors of the writers, Horsley and Semon, in this field. By experiments upon animals they have proved that in the medulla oblongata as well as in the cerebral cortex symmetrically placed centers for the larynx, and moreover separate centers for phonation and respiration, are to be found. The latter, of much more importance, are found in the upper portion of the floor of the fourth ventricle in the *ala cinerea*.

The phonetic center lies immediately under the respiratory in the lower portion of the floor of the fourth ventricle (*calamus scriptorius et corpus restiforme*).

Irritation of each produces likewise a double sided abduction of the vocal cords.

Finally, the same writers demonstrated that fibers proceeded from the laryngeal center in the cerebral cortex to the medulla oblongata. They pass principally through the internal capsule where they occupy a position indicating their phonetic and respiratory function.

In general, the cortex is, above all others, the seat of the voluntary functions of the larynx; namely, that of phonation; the medulla oblongata on the other hand is the seat of automatic function, that is, of respiration. As I have already mentioned, irritation of the centers of the cortex always causes a bilateral adduction of the vocal cords, and

Uchermann of Christiania has just published a case, as is claimed "in vivo," which proves the presence of such a center in man.

not a one-sided and opposed abduction as shown by Masini, but with whom Semon and Horsley, and also Onodi and Klemperer, are not agreed.

At best the question of paralysis of the larynx, as regards its primary origin in the cortex of the brain is not as yet solved. The possibility of this latter is accepted by the representatives of the French school (Garel and Dor¹⁰ Déjérine, Raugel¹¹ and also by Dreyfuss¹²). Klemperer, however, is an opponent of this theory.

The innervation of the larynx is accomplished by means of two nerves, the laryngeus superior, and inferior. The latter is commonly called the recurrent. Besides these some authors, (Exner¹³ in men; Horsley and Semon, in dogs) maintain the existence of a third nerve of the larynx; viz., the laryngeus medius. Finally, Onodi claims that the nervus sympathicus (sympathetic nerve) plays a part in the innervation of the larynx.

The superior laryngeal nerve arises from the vagus, and is "par excellence" the nerve of sensation, with the exception of its terminal branches which supply the cricothyroid muscle. The recurrent nerve is, on the other hand, the motor nerve of the larynx,* supplying all of its muscles, the adductors as well as the abductors.

In general it has not as yet been agreed which of the nerves, vagus or accessorius, is the voluntary motor nerve of the larynx. The majority of writers (Schech¹⁴, and lately Darkschewitsch,¹⁵ Uchermann, etc.), hold the old view (Claude, Bernard, Longet), that the nervus accessorius Willisii is the principal motor nerve of the larynx; others, however, as Navratil, and lately Grabower,¹⁶ Grossmann, Onodi,¹⁷ Stoerk,¹⁸ etc., hold that the nervus accessorius plays absolutely no part in the innervation of the larynx, inasmuch as they recognize only the vagus as the motor nerve of the larynx "par excellence."

As mentioned above, this question is not as yet finally settled (Semon). At all events all the nerve fibers that are destined for the larynx, motor as well as sensory, after the joining of the nervus vagus and accessorius Willisii, on exit from the jugular foramen pass out of the trunk of

*According to Burkhardt, and Krause, as also Masini, the recurrent nerve also contains fibers of sensation, with which view, however, Semon, Burger and Hooper are not agreed.

the vagus. It is therefore very important, and regarding this, Semon called attention, that the fibers for opening the glottis pursue their course separately on the inner side, while those for closing the same pass along the outer side (Russell, Onodi).

In closing this rather general subdivision, in order to understand the fundamental differences which arise in explaining the laryngeal disturbances present in functional and organic diseases of the central nervous system, I must here call attention to that extremely important law of Rosenbach-Semon, or rather of Semon, which is, that in every progressive organic disease of the nervous system of central (Semon), or peripheral (Rosenbach) origin, those fibers are originally or entirely responsible for the paralysis which supply the posterior cricoarytenoid muscle; afterward the other muscles (adductors) may be affected as a result of their paralytic contracture, consequent upon which the muscles of the vocal cords undergo a secondary paralysis (thyro-arytenoid) (Burger²⁰, Semon). In this manner we explain the median, that is, the position of phonation of the vocal cords, which forms the first stage of paralysis of the recurrent nerve (the second, last stage, is that of cadaveric position).

The view of Krause on the other hand, that we have not in this instance to do with a primary paralysis of the crico-arytenoid muscles but with a primary contraction of all the muscles of the larynx which are supplied by branches of the recurrent nerve especially, namely, the crico-arytenoidei laterales according to Krause, or the crico-thyroid muscles according to Grossmann and Wagner, finds continually fewer supporters.

After these short general remarks upon the anatomy and physiology of the innervation of the larynx, remarks which I regard as indispensable for a clear understanding of laryngeal disturbances, which are met with in the course of diseases of the central nervous system, I proceed to a study of the latter. In this I shall rely upon my own findings in the examinations of the larynx in 154 cases of various diseases, principally in organic diseases, but to some extent in functional diseases, of the central nervous system. I have carried out these examinations in nearly all of the hospitals in Warsaw (Infant Jesus, Holy Ghost,

the Jewish, the Evangelical), also in Prague, and finally in the asylum for the aged of the Warsaw Charitable Association.

In as much as it is an impossibility for me to mention all the physicians and directors of the divisions, as also their assistants, to the kindness of whom I am indebted for the opportunity of carrying on my examinations, I here take occasion to express to one and all my heartfelt gratitude.

As is known we divide all diseases of the central nervous system into two principal groups, the functional and the organic. The latter are more important and therefore I shall begin with them and in this I shall consider the diseases of the brain, of the medulla oblongata, and of the spinal cord, although this division will not be a strict one, since many affections, for example, sclerosis disseminata, belong equally to different groups.

A. ORGANIC DISEASES OF THE CENTRAL NERVOUS SYSTEM.

I. THE BRAIN AND ITS COVERINGS.

1. *Meningitis (simplex, purulenta, tuberculosa, syphilitica, etc).*

In meningitis simplex the mucous membrane of the larynx (and pharynx) is probably unusually sensitive; examinations, however, with this end in view, simply on the grounds of technique are exceedingly difficult (Löri²¹). This same author saw, in a child, in the beginning of an inflammation of the meninges, a spasm of the glottis. An ataxia of the vocal cords has been observed by Schroetter. As regards the paralyses of the larynx, they appear usually in the latter stages of the inflammation of the meninges, and among other manifestations permit of the entering (aspiration) of fluid into the respiratory tract (Schluck-pneumonie). On the other hand, in purulent basilar meningitis, or meningitis tuberculosa, involvement of the vagus and accessorius is exceedingly rare. In syphilitic pachymeningitis, Remak²² has observed in the beginning a right sided paralysis, and later a left sided paralysis of the recurrent nerve.

In epidemic cerebro-spinal-meningitis Oppenheim observed a form of nystagmus of the vocal cords (30-80

oscillations per minute); Major²³ on the other hand a complete bilateral paralysis of the crico-arytenoid muscles. Bamberger²⁴ and Wallenberg²⁵ each published a case of encephalitis and meningitis with paralysis of the larynx.

In chronic hydrocephalus, a spasm of the glottis, laryngismus stridulus, is described. Löri regards the "cri hydrocéphalique" as a symptom of irritation of the larynx. In the single case of chronic hydrocephalus which I had the opportunity of observing (in Dr. Chelmonski's division in the hospital of the Infant Jesus) affecting a patient 44 years old, I found an impairment of the mobility of the right vocal cord—similar to the position of phonation (paresis postici dextra).

2. *Hyperaemia et anaemia cerebri.*

In this affection is described a spasm of the glottis (laryngismus stridulus), as well as ictus (vertigo) laryngis, an affection which begins with an unpleasant sensation in the neighborhood of the larynx, followed by vertigo and finally a temporary unconsciousness. Such cases have been published by Gerhardt, Schmidt and Kurtz.

3. *Hemorrhagia et encephalomalacia cerebri.*

Kattwinkel²⁶ has interested himself especially in the question of reflexes of the larynx in hemiplegias, and has arrived at the following conclusion: In left sided hemiplegias there is more frequently a weakening, in fact an absence of this reflex (58 per cent.) than in right sided hemiplegias (only six per cent.).

As a result of my own investigation in 31 cases of hemiplegia I can not confirm the above statement.

In general, anesthesia of the mucous membrane of the larynx appears much more infrequently in these affections than that of the pharynx (Löri). Scheinmann has observed a tremor of the vocal cords in cerebral hemorrhage.

Regarding the paralysis in these affections, I have already observed that we possess as yet no absolutely positive proofs that such exist. There indeed exist in literature observations of partial or complete paralysis of the larynx following hemorrhages or brain softenings, but

in the majority of cases they will not bear a very close scrutiny, in so far as they (1) either have not been confirmed at the autopsy which would probably have shown changes in the medulla, as that, for example, found in the case of Bryson Delavan, (2) or they are found on post-mortem, but without having been examined laryngoscopically during life.

The cases of one-sided paralysis of the larynx elicit special attention, since they contradict the general law that by irritation of the cortical centers in one hemisphere a double sided paralysis of the vocal cords is produced.

In general, Semon and Lermoyez (both very experienced authorities in this field) believe that they were not able in a single instance to discover a motor disturbance (paralysis) of the larynx.

Löri on the other hand has observed, in hemorrhages of the brain, directly following the attack, a unilateral paralysis of the recurrent. These cases usually ended fatally, but in the cases where recovery took place this symptom also disappeared, which Gottstein regards as a result of the reflex caused by the hemorrhage.

In one of the four cases of Krause (hemiplegia dextra aphasia) paresis and anesthesia of the right side of the larynx were observed.

Among the cases upon which autopsy was made and which speak for the possibility of paralysis of the larynx emanating from the cortex, should be mentioned the case of Rebillard, also of Garel, of Garel and Dor, and finally the most convincing according to Dreyfuss are the two cases of Déjérine²⁷. In all of these cases the paralysis was one-sided.

I have observed in 31 cases of hemiplegia, paresis postici four times, and that always one-sided; namely three times on the opposite side (twice in hemiplegia sinistra—right-sided paresis, and once in hemiplegia dextra—paresis posticus sinistra), once only in right-sided paralysis following hemorrhage of the brain, and in paralysis of the right facial nerve and right-half of the tongue, a partial paralysis (paresis) of the right posticus was present.

Still these cases, inasmuch as they were not confirmed by the autopsy, belong, in my opinion, in the first cate-

gory, and are as such, as is also the last one described by Uchermann,²⁸ not conclusive.

4. *Syphilis of the brain.*

Disturbances of the larynx (anesthesia, paralysis), are among the frequent occurrences in syphilis of the brain. (Oppenheim²⁹ Löri). In this list belong the cases of Oppenheim (spasm of the glottis) of Ott (anesthesia of the right half of the larynx, right-sided paralysis of the recurrent), of Bull³⁰ (bilateral posticus paralysis). My observations include 16 cases of these neuroses; twice laryngeal disturbances were present, once complete paralysis of the left recurrent, that is cadaveric position of the left vocal cord, and once paralysis of the right posticus, that is median position of the right vocal cord.

5. *Tumors of the brain, particularly of the cerebellum.*

Oppenheim³¹ holds that in tumors of the cortex permanent laryngeal disturbances are hardly ever present, but are only temporary. In Krause's³² case (glio-sarcoma corporis striati et lobi sinistris, hemiplegia dextra, aphasia), a paralysis of the right half of the larynx was present (paralysis of the right recurrent nerve). Spencer³³ on the other hand observed a nystagmus of the vocal cords in a metastatic sarcoma of the dura-mater causing pressure on the left frontal gyrus. In tumors of the cerebellum, a tremor of the vocal cords is observed (Collet and Oppenheim).

I have twice seen in ten cases of tumor of the brain, that is, of the cerebellum, a partial paralysis of the left crico-arytenoideus posterior (paresis postici sinistra).

Before I proceed to a description of the disturbances of the larynx in organic diseases of the medulla oblongata I will consider another affection, namely:

6. *Pathological processes at the base of the skull (gummata, tumors, fractures, etc.).*

On account of the pressure at the exit of the accessory nerves these processes more frequently cause disturbances of the larynx. Löri has observed anesthesia and Garrod³⁴ a double sided paralysis of the postici in gummata of the base; McBride³⁵ paralysis of the left posticus in cases of carcinoma of the base; Scheck has observed a paralysis of the vocal cords; Moeser³⁶ a paralysis of

the right recurrent in fractures of the base; Haug¹⁴¹ lately described an endothelial carcinoma of the temporal bone with extension into the base of the skull, in which likewise a recurrent paralysis constituted *intra vitam*, the most pronounced symptom. In general it is to be observed that pathologic processes, especially tumors of the base (posterior fossa) usually present the picture of a half-sided bulbar paralysis, with involvement as a rule, of many nerves.

As regards my personal observation, I have observed in my hospital practice a case of *commotio cerebri*, with an absence however of laryngeal disturbance, as also one of probable syphilitic process of the base. In the last case, which occurred in a patient 46 years of age, with a bilateral paralysis of the oculomotor nerves, I diagnosed a paresis of the right posterior crico-arytenoid muscles (*paresis postici dextra*).

II. MEDULLA OBLONGATA.

1. *Hæmorrhagia et ramollitio.*

These processes in the medulla oblongata present a picture which is similar to that of progressive bulbar paralysis, and is known as *paralysis bulbaris apoplectiformis*. Laryngeal disturbances in these cases are rarely observed as the majority of them are rapidly fatal. In this class belongs the case of Remak, in which according to Gottstein, the examination of the larynx led to a proper diagnosis; and especially three cases of Eisenlohr³⁶ in which the examination of the larynx, *intra vitam*, was confirmed by the autopsy.

2. *Tumors, as well as syphilitic processes of the medulla oblongata.*

In this class belong the cases of Nothnagel, Lõri (anesthesia and paralysis of the right half of the larynx in left-sided glioma), as well as those of Ott (unilateral paralysis of the larynx, as a result of arteritis syphilitica).

In a case of supposed tumor in the fourth ventricle, in a patient 31 years of age, with paralysis of nearly all the cranial nerves (from the 3d to the 12th), I found a partial paralysis of the left posticus.

3. *Progressive bulbar paralysis (paralysis glosso-labiolaryngée, Duchenne).*

Anesthesia of the mucous membrane of the larynx,

ataxia of the vocal cords (Schroetter), finally paralysis of the vocal cords partial or complete, unilateral (Bosworth³⁷), or bilateral (Semon³⁹) have been found in this affection. Usually the abductors of the glottis were paralysed, only in the cases from Krause, Broadbent⁴⁰, and Dreyfuss were the adductors affected.

As a rule the larynx symptoms in this affection appear later than the paralysis of the tongue and soft palate, which gives rise to characteristic speech (a weak monotone without modulation, the highest tones being impossible). In two of the four such cases observed by me, I found paralysis of the postici (once on the left side, and once on the right side). The third case, a patient 64 years old, who, one week previously, became suddenly ill, presented hoarseness, disturbed articulation, static ataxia (spastic ataxic gait), and slight paresis of the lower extremities. Acute bulbar paralysis was diagnosed. Examination of the larynx showed immobility of the left half, with swelling of left false vocal cord, and of the left arytenoid cartilages. After application of an energetic antiphlogistic the symptoms of swelling of the larynx disappeared; the left vocal cord, however, did not reach the median line in phonation as was seen in a case of Lörri's. Finally in the fourth (last) case of progressive bulbar paralysis, I found no disturbance of the larynx whatever.

4. *Pseudo-bulbar paralysis.*

This affection, as is known, is caused by localized changes in the brain, and runs its course similar to a real bulbar paralysis (for this reason I consider it here). Besides the paralysis of the lips and tongue, laryngeal disturbances are sometimes observed; paralyse, namely, not however of the abductors, which is explained by the inferiority of the respiratory centers in the brain cortex (Semon). Here belong the cases of Lannois, Cartaz,⁴¹ and Krause. There are also cases of paralysis of the abductors (Müntzer), but Dreyfuss, with justice, states that their pure cerebral origin is doubtful.

5. *Sclerosis disseminata (sclerose en plaques).*

This affection which is caused by areas scattered through the brain and spinal cord, I think best to consider in this connection.

Laryngeal disturbances are frequent in this affection according to some (Löri), seldom, according to others (Semon).

In this case a paralysis of the tensors of the vocal cords (crico-thyroid muscles) (in Erb's cases,⁴² however, a double-sided posticus paralysis) is usually the underlying cause, whereby the tone, passing over to falsetto, and characteristic of this affection is explained. The equally characteristic "noisy inspiration" the same author explains by paralysis of the abductors, which probably is likewise dependent upon the involvement of the nucleus in the medulla oblongata. Krause observed as a primary symptom in this affection spastic aphonia, that is, a functional glottis spasm on phonation. As a frequent symptom of sclerosis disseminata is observed tremor, nystagmus of the vocal cords in the form of an intention tremor, that is, a tremor which appeared on efforts of phonation. Such cases have been observed by Gerhardt, Krause, Krzywicki,⁴⁴ Löri, Collet,⁴³ Batten and Horn,⁴⁵ etc.

According to my observation I have seen eight cases of this affection in one of which I found a paralysis of the adductors, principally the transversus muscle. In a second case (a 25-year-old patient) there was present a right-sided posticus paralysis, that is the position of phonation of the right vocal cord. Finally, in four cases I had the opportunity to observe a tremor of the vocal cords particularly well marked, in a patient 34 years old, with symptoms typical of "sclerose en plaques" (scanning speech, nystagmus bulborum oculorum, intention-tremor in the upper and lower extremities, and scattered anesthesias). In two cases of this affection I was unable to find the slightest disturbance in the larynx. Lately I have had the opportunity in my private practice to observe another such case, having all the symptoms of sclerosis disseminata, in a girl 20 years of age (nystagmus, intention-tremor of the lower extremities, etc.), in which I found a total paralysis of the left recurrent nerve (cadaveric position of the left vocal cord).

III. THE SPINAL CORD AND ITS COVERINGS.

1. *Pachymeningitis spinalis externa, leptomeningitis spinalis acuta.*

Regarding these diseases in which laryngeal disturb-

ances are present, we possess only the observations of Lőri. In the latter of the two diseases above mentioned this writer usually noticed a double-sided paralysis of the recurrent.

2. *Myelitis (chronica transversa).*

In this affection, in which, as is well known, the principal symptoms are paraplegia with exaggerated patellar reflex, anesthesia and paralysis of the bladder and intestines, laryngeal disturbances are seldom met with; although in eight cases of chronic myelitis, I observed in each, right-sided paresis of the posticus, and in one case of acute transverse myelitis I found a right-sided paralysis of the recurrent (cadaveric position of the right vocal cord).

3. *Syphilis and tumor of the spinal cord.*

In reference to syphilis, a case of Krause's is well known. In three cases of syphilis of the spinal cord observed by myself, I found in two of them right-sided posticus paralysis. Finally in a single case (a patient 64 years of age) with a probable tumor of the spinal cord with right-sided paresis and spastic symptoms on the right half of the body, I found a right-sided paralysis of the posterior crico-arytenoid muscles.

4. *Spastic spinal paralysis, hereditary ataxia (Morbus Friedreich).*

The former affection, which is characterized by a primary sclerosis of the lateral columns of the cord, I once had an opportunity to observe in the division of my colleague Pulawski in the hospital of the Infant Jesus; in the larynx, however, I found not the least disturbance.

Regarding Friedreich's disease, we know that it appears in the majority of instances in several members of the same family, and at a youthful age (before the 16th year). Symptoms of ataxia first appear in the lower extremities, then in the entire body, even when the patient is quiet (static ataxia).

Griffith has in 143 cases of this affection, observed in 189 instances disturbances of speech, articulation being often interrupted through sudden pausing, sometimes scanning and drawling.

5. *Tabes dorsalis (ataxic locomotrice).*

The laryngeal disturbances in this affection will be

thoroughly considered in the second part of this work.

6. *Sclerosis lateralis amyotrophica* (Charcot).

As yet we possess few observation of laryngeal disturbances in this affection. In this class belong the cases of Löri (double-sided paralysis of the recurrent), Dorling (bilateral posticus paralysis), Cartaz, etc. I have observed two cases of this affection in one of which, in a patient 39 years old, with symptoms of paraparesis spastica inferior et atrophia superior, I found a right-sided posticus paralysis.

7. *Atrophia (dystrophia) musculorum progressiva* (Aran, Duchenne)

Laryngeal disturbances in this affection usually appear at an early period, therefore not as in the simple form of Duchenne (paralysie glosso-labio-laryngée).

They appear most frequently in the form of abductor-paralyses, commonly unilateral, seldom bilateral. [Case of Koschlakoff,⁵⁵ as also of Gevaert⁵⁶.]

According to Löri, anesthetics of the pharynx are frequent in this affection. In one case of dystrophia musculorum progressiva occurring in a boy of 11 years of age I found no special changes in the larynx.

8. *Syringomyelia*.

This rare affection, to which only recently we have begun to pay attention, is characterized, as is well known, by the following principal symptoms: Progressive muscular atrophy of the upper extremities, partial paralysis, disturbances of sensation, motor and trophic disturbances of the skin, tendency to the formation of paronychia, etc. Laryngeal disturbances in this affection are of relative frequency. Cartaz⁵⁷ has observed them in one-half of 18 cases. They appear most frequently in the form of paralysis of the recurrent (Schlesinger⁶⁸) more often unilateral, though it may be bilateral (Schmidt⁵⁸) that is, the opposite of that which occurs in tabes dorsalis. Often in combination with paralysis or atrophy of the cucullaris (Weintraud). Tremor of the vocal cords has often been observed in this affection (Schroetter) as also rhythmic movements of the arytenoid cartilage on breathing, of chronic character. Finally Lack has observed in this affection "crises laryngées."

In all I have seen but two cases of syringomyelia. In both I found laryngeal disturbances, namely, in both, paralysis of the left posterior crico-arytenoid muscles. (paralysis postici sinistra). In one of these cases (19 years of age) I found on second examination, one month after disappearance of the symptoms of syringomyelia, that the larynx paralysis also disappeared.

9. *Neuritis multiplex, polyneuritis.*

Of the two cases which I had the opportunity to observe in my hospital practice, one (a patient 32 years of age) presented a partial paralysis (paresis) of the right posticus.

B. FUNCTIONAL DISEASES OF THE CENTRAL NERVOUS-SYSTEM.

FUNCTIONAL NEUROSES.

1. *Hysteria, neurasthenia, hypochondriasis.*

In these neuroses, hyperesthesia and neuralgia as well as paresthesias are often present. As regards anesthetics of the mucous membrane of the larynx in hysteria, opinion is divided. A few, for example Chairon, view these as constant symptoms of this affection; Schech and Semon also regard these as frequent, LÖri on the other hand as very rare, and McKenzie in fact claims that he has never observed this symptom in his patients.

In these disturbances (hysteria, neurasthenia, and hypochondriasis), spastic aphonia is observed (Gerhardt, Schroetter, Onodi, etc.), that is, a spasm of the glottis on phonation, also a functional respiratory (Semon), co-ordination (Meyer⁶²), spasm; finally Przedborski⁶³ describes a case of hysterical spasm of the abductors, which, however, Burger and Semon regard as very doubtful. Schroetter has described an ataxia of the vocal cords, also Schmidt. Tremor of the vocal cords of hysterical origin has been observed by Gerhardt, and Baginsky. In the latter's case 50-54 oscillations per minute were noticed.

As regards paralysis of the larynx, the adductors of the glottis, principally the thyro-arytenoids int. muscles, are the underlying cause.

There are indeed cases in which paralysis of the pos-

terior crico-arytenoid muscles have been described unilateral (Löri), as well as bilateral (Dufour⁶⁴ Scheppegrell); these, however, are with justice questioned by Burger and Semon.

My material embraces 33 cases of hysteria, neurasthenia and hypochondriasis, which I have observed in hospital practice; not once have I observed a paralysis of the abductors, frequently, however, paralysis of the adductors. Finally, I observed in an hysterical patient 23 years of age a phonetic spasm of the glottis.

2. *Neurosis traumatica.*

In recent times these neuroses have been demonstrated in hysteria as well as in neurasthenia and hypochondriasis. The paralysis of the abductors in this disease has according to Dreyfuss an important diagnostic significance, in so far as it speaks against simulation, as well as against a functional origin of the paralysis, and indicates a probability of an organic affection.

In this disease Scheier⁶¹ has observed twice in ten cases, anesthesia of the mucous membrane of the larynx, Holz⁵⁴, however, in one case, paresis of the ad- and abductors.

In one case in my clinical material (a patient 61 years old) I found no disturbance of the larynx.

3. *Epilepsy.*

According to Gottstein, anesthesia of the larynx during and after the epileptic seizure is an ever present symptom of this affection. Gerhardt observed in this disease a respiratory spasm as did also Löri. In two cases of epilepsy of my own no laryngeal disturbances were present, nor in one case of hystero-epilepsy.

4. *Paralysis agitata.*

Schroetter observed in this affection ataxia of the vocal cords, Gerhardt, tremor, Müller⁶⁵ the same (the vocal cords in going over from phonation to respiration made 3 to 5 pendulum adduction movements.) In the cases of Rosenberg⁶⁶ the tremor of the vocal cords appeared only during quiet respiration; that is, the opposite of what is at times observed in sclerosis disseminata (intention tremor) in going over from phonation to respiration. Besides this there also occurred in these cases a coincident

drawing in of the epiglottis with delayed adduction, and change of tension, thereby causing irregular speech, and often a change of high notes, being sometimes falsetto, sometimes bass. Moreover, a tremulous scanning speech may result on account of an involvement of the lips, cheeks, and tongue.

In two of the four cases of paralysis agitans which I had the opportunity of observing there was present, although not very pronounced, a tremor of the vocal cords.

5. *Chorea*.

Spasm of the larynx is here observed on inspiration. (Schroetter ataxia of the vocal cords, Gerhardt tremor, finally Krause, tremor of the vocal cords with paresis of the adductors).

6. *Tetany*.

Tetany is characterized by intermittent, at times painful, tonic tremor, symmetrically on both sides of groups of muscles (most frequently the interossei of the palm of the hand) whereby pressure on the brachial artery or plexus brachialis calls forth an attack (the so-called symptom of Trousseau). It is particularly a disease of youth; spasm of the glottis (laryngismus stridulus), has in this connection been observed by Loos⁶⁷, Kramsztyk, Kassowitz, in combination with the tremor of the upper and lower extremities (carpo-pedal spasmus).

7. *Dementia paralytica*.

Anesthesia of the larynx has been observed by Lennox Brown; Krause has observed principally paralysis of the adductors. In my two cases of this affection, I have observed no disturbances of any significance.

8. *Paralysis periodica* (Erb, Goldflam).

I had an opportunity to observe this rare affection in a teacher 54 years of age, without however any changes in the larynx.

LARYNGEAL DISTURBANCES IN TABES DORSALIS (ATAXIE LOCOMOTRICE).*

Laryngeal disturbances in tabes dorsalis are relatively frequent, and, what is of the greatest importance is that

*From an address delivered at the meeting of the medical society of Warsaw, Jan. 17, 1899.

they appear at times at a very early period of this affection. Therefore their recognition is, not only for the laryngologist, but also for the neurologist, of the utmost importance.

For this reason I shall devote myself particularly to this question, especially since in our literature (Polish) such a monograph does not exist.*

It appears quite reasonable that before the days of the laryngoscope, that is, until the end of the first half of the last century, we knew nothing of laryngeal disturbances in *tabes dorsalis*. Indeed, in the first years of this epoch-making discovery, investigations regarding the above question were not made. There does exist a reference to laryngeal paralysis in *tabes dorsalis* in a case observed by the celebrated clinician Duchenne, in the year 1859, without, however, a laryngoscopic examination. In 1866, Schnitzler⁷⁰ in Vienna was the first who, with the help of the laryngoscope, diagnosed the presence of a paralysis of the larynx in two cases of *tabes dorsalis*.

Shortly thereafter Féréol, in the year 1868, for the first time, in a meeting of the French Medical Society, made mention of a very important disturbance of the larynx appearing in the first stage of *tabes dorsalis*, namely, a spasm of the glottis, called by him "crises laryngées," which designation it has held up to the present time. In the year 1875, Rosenthal⁷² (2 cases of paralysis of the larynx) Semon⁷³⁻⁷⁴ in 1878-'79 (a case of bilateral paralysis of the posterior crico-arytenoid muscles), Charcot,⁷⁵ 1879 (laryngoscopic examination made by Krishaber, which demonstrated laryngeal paralysis), have written regarding the above mentioned manifestation. Then Krishaber⁷⁶ in the year 1880 (two cases of laryngeal paralysis). Semon⁷⁷ in 1881 wrote, for the third time, upon this subject, as did Cherchewsky⁷⁸ in the same year. This writer collected for the first time in a most comprehensive monograph, all the known cases of laryngeal disturbances in *tabes dorsalis* that had appeared in the literature up to that date, to which he added two new cases from Charcot's clinic, in which laryngeal paralysis had been diagnosed by Krishaber, by a laryngoscopic examin-

*In the preparation of this part I used with preference the splendid monograph of Burger.⁷²

ation. By this Krishaber rendered great service, as he entered into a minute study of *tabes dorsalis*, whereby he gave the impulse to a further systematic examination of the larynx in this affection. To the later observations belong those of Kahler⁷⁹, and Morgan⁸⁰ both of the year 1881 (each a case of laryngeal paralysis in *tabes dorsalis*.) In the following year (1882) Lhoste⁸¹ chose as the theme for his inaugural dissertation the laryngeal disturbances in *tabes dorsalis*, on the grounds that a case in which these disturbances were present awakened the suspicion of *tabes dorsalis* (dyspnea, as a result of bilateral adductor paralysis; Krishaber).

In the year 1883 there appeared, in reference to the question now under discussion, three new investigations of Pillat,⁸² Landouzy and Déjérine⁸³ finally Eisenlohr⁸⁴ (bilateral paralysis of the *postici* muscles). In the following year Oppenheim⁸⁵ a splendid diagnostician of nervous diseases, in reference to the above question, addressed the Berlin psychiatric society regarding a case of bilateral larynx paralysis, in the discussion of which Remak⁸⁶ mentioned a case in which the laryngoscopic examination disclosed a unilateral paralysis of the *posticus* muscle as almost the first symptom of *tabes dorsalis*. Following this Krause⁸⁷ in the year 1885 laid before the medical society the results of the examinations of the larynx in patients afflicted with nervous diseases in the Charité hospital in Berlin. This year yielded a wealth of articles, having for their title laryngeal disturbances in *tabes dorsalis*. Here belong the investigations of Fournier,⁸⁸ Ord and Semon⁸⁹ (a very interesting case which demonstrated the importance of examining the larynx in *tabes dorsalis*) Ziegelmeyer,⁹⁰ Gerhardt,⁹¹ McBride,⁹² Bristowe,⁹³ Berbez,⁹⁴ and finally Huchard and le Gendre⁹⁵. In the same year Munschina chose as a theme for his inaugural address laryngeal disturbances in *tabes dorsalis*. Finally Löri²¹ in his well known work regarding the changes in the pharynx and larynx in various affections in the body, stated, that in six cases of *tabes dorsalis*, he found four laryngeal paralysees, presenting the symptoms of irritation, as well as of pain, in the region of the larynx, cough, spasm of the glottis, etc.

Since that time, casual, as well as exhaustive treatises

having to do with laryngeal disturbances in *tabes dorsalis* have steadily increased.

For instance in 1896, the following articles were published: Krause,⁹⁸ who for a second time took up the work; Weil⁹⁹ a case of bilateral paralysis of the adductors as an initial symptom of *tabes dorsalis*, also Landgraf¹⁰⁰ (combination of the "crises laryngées" with bilateral abductor paralysis; Saundby¹⁰¹ (bilateral posticus paralysis); Hirschmann¹⁰², paralysis of both postici with coexisting pulmonary tuberculosis; Ross,¹⁰³ Krause,¹⁰⁴ a case of laryngeal paralysis with deformities of the joints; finally, B. Fränkel¹⁰⁵ (bilateral posticus paralysis).

In the year 1887, the following authors wrote regarding this question: Martius¹⁰⁶ a case of Landgraf's with consequent paralysis of the trapezius muscles, that is, involvement of the accessory nerve, also Pel¹⁰⁷ unilateral atrophy of the tongue, left sided paralysis of the soft palate, atrophy of the left sterno-cleido-mastoid muscle and the trapezius, and finally left sided paralysis of the recurrent; Felici¹⁰⁸ (an interesting case of laryngeal disturbance; crisis and bilateral paralysis of the postici, occasioned the solicitation of medical aid, whereby *tabes dorsalis* was diagnosed); Luc¹⁰⁹ likewise a very interesting case which emphasized the importance of laryngeal examination (bilateral posticus paralysis where *tabes dorsalis* was diagnosed); Kuesner¹¹⁰ (two cases of postici paralysis, one being complicated by struma). Wegener¹¹¹ chose this subject for his inaugural dissertation. In the same year Eulenberg¹⁰² mentioned a case of *tabes dorsalis* with paralysis and atrophy of the tongue, paralysis of the ocular and laryngeal muscles (bilateral posticus paralysis, Baginski). This author mentioned in general, that he had often discovered paralysis of the vocal cords in *tabes dorsalis*. Oppenheim⁴⁹ mentioned a case in which in addition to "crises gastriques et laryngées", pharyngeal spasms, so called by himself, were present, that is, spasmodic movements on swallowing.

Finally Tissier¹¹³ in the same year also reported a case of laryngeal paralysis in *tabes dorsalis*.

In the year 1888 there appeared a detailed investigation by Krause³² entitled: "On the disturbances of the functions of the larynx in diseases of the central nervous system."

This work showed that the disturbances of the larynx in *tabes dorsalis*, which up to the present time were thought to occur but seldom, were by no means so infrequent, since this author in 38 cases of *tabes* found laryngeal disturbances in 30. These disturbances were principally partial or complete paralysis of the muscles of the larynx, especially the posterior crico-arytenoid, which this writer evidently by mistake, claimed to be a result of adductor spasms, and not as is generally accepted, a primary paralysis of the abductors (Semon).

In the same year Aronsohn¹¹⁴ referred to a case of left-sided posticus paralysis, an atrophy of the left cucullaris muscle, sternocleido-mastoid, and soft palate; Kroenig¹¹⁵ (2 cases of bilateral posticus paralysis, Baginsky). Lucas Championnière¹¹⁶ wrote in reference to *crises laryngées*. Masucci¹³⁹ proposed instead of "crises," the term *neurosis* or *spasmus laryngis*. In the year 1889 again appeared that already oft quoted writer, Oppenheim¹¹⁷, referring to this question in an ably written article in which he described, in addition to his previously published case of pharynx crises, a paralysis of the abductors.

In the year 1890, Marina⁴⁷ published in Trieste a detailed work upon *tabes* with special attention to the disturbances of the ears, pharynx and larynx, based upon a study of 40 cases of this affection. In nearly all cases disturbances of the larynx more or less marked were found (examination by Fano); namely, in five cases the epiglottis was curved posteriorly making the examination of the larynx impossible, in 14 cases disturbance of sensation in the pharynx, nine times in the larynx, paralysis of the adductors in ten cases, in eight cases, however, the abductors, irregularity of the vocal cords four times, and in nine cases ataxia. The results of the examination of the larynx in tabetic patients instituted by Dreyfuss in Mendel's clinic are most decidedly at variance with the above. This writer in 22 cases of this affection only twice diagnosed a laryngeal disturbance (bilateral paralysis of the postici). Finally Geison in the same year published a paper in reference to the question "*Crises laryngées in tabes dorsalis*;" Symonds¹⁴⁰, a case (doubted, however, by Semon) of laryngeal paralysis, as one of the first symptoms of *tabes*.

The year 1891 produced but a single work, but this comprehended all former ones,—the splendid monograph of Burger, of Amsterdam, entitled, “The disturbances of the larynx in *tabes dorsalis*,” which has proved most useful to me in the present article. After a very careful presentation of the works that had appeared up to date, relative to the question of laryngeal disturbances in *tabes*, this author added the results of his own observations in 20 cases: of this number six showed laryngeal involvement (twice ataxia of the vocal cords and four times paralysis of the muscles of the larynx). He also mentioned two cases observed in his private practice of the physicians Kooy and Klinkert. In closing his learned article the writer draws, among others, the conclusion that the so-called posticus paralysis is a symptom of *tabes* “par excellence.” This view is entirely correct, as we shall soon convince ourselves.

Ruault⁹¹⁹ in the year 1891 mentioned in the Laryngological Society of Paris a case of *tabes* with “*crises laryngées*.”

In the following year appeared successively the articles, in reference to laryngeal disturbances in *tabes*, by Lasnière¹²⁰ and Grabower⁵⁴ (paralysis postici). In the year 1893 at a meeting of the London Laryngological society, Semon¹²¹⁻¹²² presented a tabetic patient, who in addition to “*crises laryngées*” and paralysis of the soft palate, showed bilateral paralysis of the abductors. The same author presented in the same year another tabetic patient in whom paralysis of the larynx (bilateral posticus paralysis) had lasted more than 12 years.

In same year Grabower¹²³ also wrote in reference to this subject, and mentioned an interesting case which presented paralysis of the right posticus muscle 15 months before the appearance of tabetic symptoms. This author advises, and with justice, that the larynx be examined in every case of nervous disease. Ilberg¹²⁴ does the same.

The year 1894 produced a small number of articles in reference to laryngeal disturbances in *tabes dorsalis*. Kronenberg¹²⁵ presented a case to the Laryngological Society of Berlin in which the examination of the larynx (posticus paralysis) made possible the diagnosis of *tabes dorsalis*. In the discussion Rosenberg^{126a} mentioned two cases of

tabes dorsalis, in which for a long time the only symptom was a disturbance of the larynx (unilateral paralysis of the recurrent nerve in one case, and double posticus paralysis in the other), and only later the symptoms of tabes dorsalis were presented.

In the same year there appeared a large work, presented under the authorship of Schlesinger from Schroetter's clinic, in which, among others, a rare case of tabes dorsalis is mentioned, complicated with spasmodic attacks of coughing and unconsciousness (ictus laryngis). Besides this in the same year (1894) Lepine¹²⁶ wrote (paralysis of the tongue and larynx in tabes), as did also Moritz¹²⁷.

Pel¹²⁸ presented a case of tabes dorsalis before the Laryngological Society of Amsterdam, in which long before the appearance of symptoms typical of tabes, the laryngeal paralysis was present.

In the year 1895 appeared the following articles relative to the question under discussion: Hawkins¹²⁹ tabes dorsalis, bilateral paralysis of the postici, tracheotomy; as also Herms¹³⁰ (inaugural dissertation).

In the year 1896, Parker¹³¹ demonstrated to the Laryngological Society of London, a case of tabes dorsalis in which the "crises laryngées" formed the first symptoms of this affection. In the discussion Semon called attention to the importance of laryngoscopic examination in cases of tabes dorsalis, and the advisability of examining the patellar reflex in every obscure case of paralysis of the larynx.

In the same year Gouguenheim and Plicque¹³² published a case of tabes dorsalis, in which after the internal use of potassium iodid, symptoms of spasm of the larynx appeared (paralysis of the abductors).

Likewise in the year 1896 there appeared in Nothnagel's Special Pathology and Therapy a very good article by Gerhardt⁵¹ entitled: "Disturbance of movements of the vocal cords," in which the writer reported among others, 122 cases of tabes dorsalis, in which he diagnosed, by the aid of the laryngoscope, 17 cases of paralysis of the larynx.

In the year 1897 Dundas Grant¹³³ presented, at a meeting of the London Laryngological Society, a patient with tabes dorsalis in whom bilateral paralysis of the posterior

crico-arytenoid muscles produced symptoms of suffocation, necessitating tracheotomy. Petren¹³⁴ in Stockholm, also published two cases of *tabes dorsalis*; in both death occurred from suffocation due to paralysis of the adductors on both sides. As a result of a microscopic examination in both the above cases the author arrives at the conclusion that laryngeal paralyses are in the majority of cases dependent upon a peripheral neuritis.

In the same year de Havilland Hall⁵⁰, in his well-known work regarding the relationship of the diseases of the respiratory passages to the general disturbances of the organism, likewise interested himself in reference to the disturbances of the larynx in *tabes dorsalis*. Again in this year Heymann's handbook of Laryngology and Rhinology (a splendid reference work) contained a very good monograph by Semon regarding the nervous affections of the larynx in which likewise the above theme is considered. Finally, Schulz¹³⁰ in the beginning of the year 1898 published a case of *tabes dorsalis* in a syphilitic patient. This case is important because it confirms the law of Semon-Rosenbach, viz., that in progressive organic diseases of the nervous system, of either central or peripheral origin. The abductors at first, or alone, are the underlying cause of the paralysis and later the adductors.

In the above cases there arose under the very eyes of the author, a beginning paralysis of the posterior crico-arytenoid muscles followed by a complete paralysis of the recurrent nerve. After specific treatment an improvement set in in the same manner, that is, recurrent paralysis ended with posticus paralysis. This is all I was able to gather regarding the question of laryngeal disturbances in *tabes dorsalis*. From this resumé we may conclude that:

1. This inquiry dates from very recent times, being only a few years old.

2. Although we are indebted for the original investigation of these disturbances to the French authors (Féréol, discoverer of the "crises laryngées," in general, however, to the school of Charcot, Cherehewsky, Krishaber, etc.*), nevertheless, as regards its further development, the work was carried on in Germany (that which now constitutes

* More than a fourth of all treatises upon laryngeal disturbances in *tabes dorsalis* come from the pen of French writers.

almost one half of all investigations, the present number of which amounts to 83, as may be seen upon the last pages of this work, and as shown by the most reliable catalogue), as, for instance by Oppenheim and Krause, and above all by Burger, in Amsterdam, whose monograph of the year 1891 forms up to the present time the most important source of our knowledge of disturbances of the larynx. Finally, we have the work of Semon, the best known diagnostician of nervous manifestations of the larynx, and author of a most comprehensive chapter on this subject in the latest work of reference by Heymann (*Handbuch der Laryngologie und Rhinologie*), as a further contribution to the subject under consideration.

As yet we possess in our own literature (Polish), as previously mentioned, no work on this subject.

After this, perhaps too lengthy introduction, which I however have considered necessary, since this question is touched upon for the first time by ourselves in Poland. I shall, before I proceed to a detailed description of the different laryngeal disturbances in *tabes dorsalis*, give a short resumé of my own observations, which I have made in the hospitals of Warsaw, thanks to the chiefs of the divisions and clinics to whom I here express my heartfelt gratitude.

I have made notes upon 22 cases of *tabes dorsalis* in which I have made an examination of the larynx.

Case 1. K., 50 years of age, laborer, in the clinic of Prof. Szerbakow in the Hospital of the Infant Jesus, Chief, Dr. Kopczynski. Diagnosis, *tabes dorsalis*. (Absence of patellar reflex, ataxia of the lower extremities.)*

Aneurysm of the ascending aorta, the latter confirmed by the aid of the Röntgen rays (Dr. Bychowski); hoarseness. The laryngoscopic examination, which I personally made, showed paralysis of the right recurrent nerve, the right vocal cord in cadaveric position, i. e., between the position of phonation and that of respiration, is somewhat shorter than the left, being concave at its free border, the latter being due to secondary paralysis of the vocal cords (internal thyro-arytenoid muscle). As re-

*To avoid repetition in the following cases, I shall not mention those symptoms which are characteristic of *tabes dorsalis*, but only those more rare ones.

gards the double affection in the above case in which the paralysis of the larynx could have been caused by the tabes dorsalis as well as by the aortic aneurysm, the former being of central, the latter of peripheral origin, I was not in a position to decide at once to which this laryngeal paralysis was due; however, I was more inclined to believe that in this case the aneurysm of the aorta, that is, of its ascending portion, pressing upon the right recurrent nerve probably produced the paralysis. And for this reason I have, among others mentioned in my article, presented this case, which was published in the year 1898 in *Gaz. Lek* and in the *Arch f. Lar.* 1899⁹⁷. The further course of the disease deserves to be mentioned. After about a month, upon making another examination of the larynx of this patient, it presented a rather marked change; the right vocal cord which was previously found in cadaveric position, now occupied the position of phonation; in other words, instead of the former paralysis of the right recurrent nerve we have here to do with the so-called posticus paralysis, that is, a paralysis of the crico-arytenoid muscles. It has been more than once observed that improvements of this nature confirm the correctness of Semon's view in reference to the superiority of the abductors in tabes dorsalis (Schulz, Semon, etc.) more rarely, however, in aneurysm of the aorta (among others, the first case in my above mentioned investigation).

Case 2. W., 32 years old, painter, in Prof. Szczerbakow's clinic, in the Hospital of the Infant Jesus. Chief, Dr. Piotrowski.

Diagnosis: Tabes dorsalis. The examination of the larynx made by myself showed no marked disturbance either subjective or objective, the movements of the vocal cords on phonation and during respiration being perfectly free.

Case 3. B., 42 years old, tinner, in Prof. Zieniec's clinic in the Hospital of the Infant Jesus, Chief Dr. Bronowski. Diagnosis: Tabes dorsalis. Besides the symptoms of this disease, which had already existed seven years (absence of the patellar reflex, ataxic walk), crises gastriques were present. The examination of the larynx showed an incomplete paralysis of the left crico-arytenoid

muscles (paresis postici sin), that is, the left vocal cord immovable, and almost in the median position. No subjective symptoms (hoarseness).

Case 4. 37 years of age, farmer, in Dr. Chelchowski's division in the Hospital of the Infant Jesus.

Diagnosis: *Tabes dorsalis*. On examination of the larynx I observed a slight ataxia of the vocal cords, which showed itself as an irregular retraction movement, that is they moved, on efforts of phonation, as also, and particularly, on deep inspiration, quickly toward the median line (in phonation), as is usual in inspiration, halting, however, half way, and later, as if pulled upon, equally rapidly assumed the proper position.

Case 5. O., 32 years of age, agent, in Dr. Dunin's division in the Hospital of the Infant Jesus.

Diagnosis: *Tabes dorsalis*. Among the rarer symptoms the "crises gastriques," which had persisted five years, deserve mention. The examination of the larynx showed an incomplete paralysis of the right crico-arytenoid muscles (paresis postici dex), the right vocal cord being in the position of phonation. The voice was clear.

Case 6. M., 39 years old, carpenter in Dr. K. Zielinski's division of the hospital in Prague.

Diagnosis: *Tabes dorsalis* lasting 1 1/2 years; "crises gastriques," hoarseness. The examination of the larynx revealed a paralysis of the right recurrent nerve (paralysis nervi recurrentis dex.); the right vocal cord a little shorter than the left, immovable on phonation, as well as during respiration; it occupies that position which we observe on the cadaver (the so called-cadaveric position), its free border being concave (secondary paralysis of the internal thyro-arytenoid muscles.)

Case 7. M., 29 years old, hat-maker, in Dr. Gajkiewicz's division in the Jewish Hospital.

Diagnosis: *Tabes dorsalis*, having lasted one year, slight hoarseness. The examination of the larynx revealed paralysis postici dex., the right vocal cord being in a position of phonation.

Case 8. S., 47 years old, in Prof. Zieniec's clinic in the Hospital of the Infant Jesus; Chief, Dr. Nartowski.

Diagnosis: *Tabes dorsalis*, pulmonary tuberculosis. I could discover no special change in the larynx.

Case 9. B., 45 years old, official, in Dr. Brunner's division of the Evangelical Hospital.

Diagnosis: *Tabes dorsalis*. The examination of the larynx revealed no disturbances in the excursion of the vocal cord.

Case 10. K., 78 years old; servant, in the "out-patient" department of the Evangelical Hospital. (Dr. Kucharzewski.)

Diagnosis: *Tabes dorsalis*; the examination of the larynx gave a negative result.

Case 11. G., 37 years of age, a woman, unmarried, living with her family, from Prof. Szczerbakow's clinic in the Hospital of the Holy Ghost. Chief, Dr. Bregman.

Diagnosis: *Tabes dorsalis superior*. The disease began seven months previously. The symptoms claiming attention were amaurosis, atrophiea nervorum opticorum, falling out of the teeth, and "crises gastriques". The examination of the larynx revealed an unchanged condition.

Case 12. D., 23 years old, factory girl, also from Prof. Szczerbakow's clinic.

Diagnosis: *Tabes dorsalis* of two years standing. Among other symptoms, atrophiea nervorum opticorum.

The examination of the larynx gave a negative result.

Case 13. K., 50 years, brewer, in the above mentioned clinic.

Diagnosis: *Tabes dorsalis*. The disease began ten years previously. Examination of the larynx revealed no special changes (perhaps the right vocal cord a trifle hindered in its movements).

Case 14. B., 31 years of age, policeman, from the same clinic as above mentioned.

Diagnosis: *Tabes dorsalis*. For the last five years, "crises laryngées," the voice somewhat hoarse. The laryngoscopic examination disclosed the following picture: both vocal cords immovable on phonation, as well as during respiration; they occupy almost a median position, so that on deepest respiration the distance between the vocal cords measures two to three mm. thereby, particularly at night, producing difficulty in breathing, and there arises a condition similar to "crises laryngées."

In other words, we have to do in the above case with a

bilateral paralysis of the posterior crico-arytenoid muscles.

Case 15. O., 40 years old, servant, from the same clinic.

Diagnosis: *Tabes dorsalis*; examination of the larynx reveals no changes.

Case 16. K., 37 years old, conductor, in Prof. Szerbakow's clinic, in the Hospital of the Infant Jesus. Chief, Dr. Kopeczynski.

Diagnosis: *Tabes dorsalis* for past four years, "crises gastriques," Romberg's and Argyll Robertson symptoms. Laryngeal examination showed complete paralysis of the right abductor muscles (*paresis postici dex.*), the right vocal cord occupying almost the median position; voice pure.

Case 17. Z., 53 years of age, farmer, in Prof. Szerbakow's clinic in the Hospital of the Holy Ghost.

Diagnosis: *Tabes dorsalis*. Examination of the larynx revealed no changes.

Case 18. R., 52 years, widow, in Dr. Pulawski's division in the Hospital of the Infant Jesus.

Diagnosis: Incipient *tabes dorsalis* (without ataxia of the lower extremities). The laryngoscopic examination showed, though not entirely clearly, a certain form of ataxia of the vocal cords, affecting the return movement: namely, instead of nearing the median line in phonation, they showed a tendency to separate from one another, and vice versa on respiration they made movements as though they would meet in the median line (the so-called perverse action of the vocal cords).

Case 19. G., 41 years old, goldworker, in Prof. Szerbakow's clinic in the Hospital of the Holy Ghost. Chief Dr. Bregman.

Diagnosis: *Tabes dorsalis*. Laryngoscopic examination, negative.

Case 20. M., 40 years of age, mechanic, in Dr. Gajkiewicz's division in the Israelite Hospital.

Diagnosis: *Tabes dorsalis*. Examination of the larynx revealed no appreciable changes.

Case 21. A., 42 years old, official, from my private practice.

Diagnosis: (Dr. Ed. Zielinski) *Tabes dorsalis* (absence

of patellar reflex, ataxic walk, etc.). The voice somewhat hoarse, tuberculosis of lungs (old infiltration of the apices). Laryngoscopic examination disclosed a right-sided paralysis of the posterior crico-arytenoid muscles (paralysis postici dex).

Case 22. K., 32 years of age, physician, from my private practice.

Diagnosis: *Tabes dorsalis*, of several years' standing; "*crises gastriques et laryngées*," absence of the patellar reflex, bilateral postici paralysis.

In this manner I found in 22 cases of *tabes dorsalis* in which I made a laryngoscopic examination. 11, that is one-half, presenting more or less disturbance, namely, nine times paralysis, and twice ataxia of the vocal cords. As regards the paralysis, two were paralysis of the recurrent (one case complicated with aortic aneurysm), two bilateral posticus paralysis, two right-sided posticus paralysis, finally three incomplete paralysis (paresis) of the posterior crico-arytenoid muscles (twice right-sided paralysis, and once left-sided).

I now come to an analysis of the particular laryngeal disturbances seen in the course of *tabes dorsalis*.

They are: 1. Those of sensation (hyperesthesia, anesthesia and paresthesia) 2. Those of motility (laryngeal crises, ataxia of the vocal cords, and finally laryngeal paralyse).

Regarding the former, they belong generally speaking, to the rarer forms. Upon this point the observations of nearly all authors agree (Krause, Dreyfuss, Burger). I also have observed these disturbances (hyperesthesia and anesthesia) principally in the pharynx, only exceptionally in the larynx. Marina, however, gives the percentage of anesthetics of the laryngeal mucous membrane at 25. I must add that the same writer has observed hyperesthesia and anesthesia of the soft palate in 85 per cent., and of the pharynx in 39 per cent., and finally an increased pharyngeal reflex in 11 per cent. of cases.

These figures are in very evident contradiction with the results of examinations by other writers, in these affections. In general I will state, that the determining of the degree of sensitiveness of the larynx or pharynx in *tabes dorsalis* as in general in other pathological processes, is

attended with great difficulty, in as much as in perfectly healthy individuals it is uniform. This is true of the pharynx as well as of the larynx. Unusual sensitiveness of the pharynx (reflex) during the laryngoscopic examination is often met with in perfectly healthy individuals, especially on first examination.

Of greater importance are the disturbances in the motor-sphere of the larynx, to which, particularly, belong the so-called "crises laryngées." They are simply spasms of the abductors, a kind of reflex neuroses, which ordinarily, are the result of irritation present in the sensitive sphere of the larynx, or may be produced by slight pressure on the thyroid cartilage; also upon the crico-thyroid ligament at the point of exit of the superior laryngeal nerve (Krause). More rarely does it take its origin from the sinus pyriformis, trachea, pharynx, nose, or external auditory canal. These "crises" are observed on pressure over Oppenheim's point (the inner border of the sternocleido-mastoid muscle in the region of the larynx) and finally during psychical or physical excitement (Semon).

They were described for the first time by Feréol in the years 1868-69, also by Krishaber, Cherchevsky, Lhoste, Fournier and Lucas Championnière (in general by the French school). In Germany, Oppenheim, Burger and Semon interested themselves especially in this subject. The designation "crises laryngées" holds to-day though it means nothing, and simple spasm of the larynx, proposed among others by Westphal, Krause (laryngospastic attacks), and Masucci (neurosis of the larynx or laryngospasm), are much more appropriate. Cherchewsky observed them quite often (9 times in 16 cases); other writers, however, were not so fortunate, as, for example, Krause, 3 times in 38 cases; Gerhardt, 4 times in 122 cases. Burger, the author of the excellent monograph on laryngeal disturbances in *tabes dorsalis*, so often quoted by me, mentions them but once.

I also noted "crises laryngées" but twice in the histories of 22 cases of this disease.

As a rule they belong to the earlier symptoms of *tabes dorsalis*.

The symptoms of "crises laryngées" are varied, depend-

ing on their intensity.* In the mildest cases sudden attacks of spasmodic coughing are observed; in cases of medium severity such attacks commence with a sudden sensation of tickling, sticking, burning, simulating the sensation of a foreign body in the neighborhood of the larynx, or a sensation of pressure, or of suffocation, which causes the patient to be seized with terror; the respiration is rendered difficult, and then comes the attack of coughing with prolonged loud inspiration and short, sudden expiration. At the same time disturbances of circulation are observed, such as cyanosis.

Simon observed a case in which "crises laryngées" developed with crises gastriques.

Such a terrifying attack usually ends after a few seconds, or at most minutes, with long, loud inspiration, which gradually becomes easier, at the same time the cough ceases. Sometimes such an attack ends with expectoration of a small amount of slimy or blood-colored sputum or perhaps vomiting.

Finally, in the severest cases, vertigo (*vertige laryngée*, Charcot), incontinence of urine and feces, epileptic attacks and apnea are observed; in spite of all the attack usually ceases without untoward consequences, although not always. Sometimes tracheotomy is necessary to save the patient on account of the dangerous dyspnea (cases of Krishaber, Semon, etc.). At times, however, death results (cases of Lizé¹³⁶, Cherchewsky, Oppenheim, Fournier, etc.).

In my statistics of laryngeal disturbance in *tabes dorsalis* (see table 1) crises laryngées existed 17 times in 125 cases. In both cases of crises laryngées in *tabes dorsalis* observed by me (Nos. 14, 22) there was a bilateral paralysis of the abductors, similar to all three cases of Krause. Such crises laryngées may exist alone, or they may be complicated with paralysis of the abductors (one or both).

Oppenheim, as also Jean, describes combinations of laryngeal spasms with spasms of the pharynx (the so-called pharynx spasm, Oppenheim). The author describes

*In describing these symptoms I will confine myself to the splendid monograph of Semon (*Heymann's Handbuch der Laryng. u. Rhin.*).

them in the following manner: "Pharynx spasms present special symptoms, and it seems to me some not as yet described. From time to time spasms of deglutition are observed, the movements of swallowing follow one another rapidly (about 24 in a minute, whereby a clicking sound and a stenotic murmur is heard)."

Such an attack lasts 10 minutes; it can, however, last longer, but is then much weaker. The attacks may come spontaneously, or during the act of swallowing; they can also be produced every time by pressure upon the side of the larynx, or where upon pressure a painful point is found.

How can the combination of paralysis of the larynx with crises laryngées be explained? Semon gives the following theory, which according to my idea is certainly the most plausible. As is known the cerebral nuclei of the abductors suffer principally in *tabes dorsalis*, complicated with paralysis of the larynx. (According to Petren, however, the paralyzes are dependent upon peripheral inflammation of the laryngeal nerves). At the same time, however, the gyrus cells of the abductors are in a condition of increased excitability and react more quickly and to a greater degree, to reflex and peripheral irritation. Under these conditions an irritation, which ordinarily would produce a single cough or a mild attack of coughing, in tabetics with increased sensibility, and a higher grade of spastic approximation of the abnormal vocal cords than that which for coughing is usually necessary, would produce a true laryngeal spasm. To this explanation Burger adds, in as much as he is essentially of the same opinion, another condition similar to that of Semon's, "that an irritation must be present at the same time."

The diagnosis of crises laryngées, is on account of the above symptoms, not difficult. One might confound them with attack, of whooping cough in adult, or with ictus (vertigo) of the larynx. The negative findings on examination of the thorax in the former, and the positive data on examination "*quo ad tabem*" (absence of patellar reflex, ataxia of the lower extremities), as well as unconsciousness in the latter, prevent a wrong diagnosis. The prognosis of the spastic attacks of the larynx in *tabes*

dorsalis is, as a rule, not bad, although a fatal termination is possible.

The treatment consists in the local application of cocain, (painting the larynx with a 20 per cent. solution) which blunts the sensibility of the larynx, whereby the number and intensity of the attacks diminish (cases of Krause, Landgraf, Oppenheim, etc.). Kussner advises the internal use of sodium bromide. During the attack inhalations of chloroform or ether are to be tried. As has already been mentioned, we are sometimes compelled to resort to tracheotomy.

II. *Ataxia of the vocal cords: that is, defective coördination of the muscles of the larynx.*

According to a few writers (Bourdon¹³⁷ Lhoste), the first accounts of these disturbances in *tabes dorsalis* were already given in the first half of the last century, 1825, by the renowned Craveilhier,¹³⁸ obviously without laryngoscopic examination which was at that time unknown.

Moreover Féréol, the discoverer of the crises laryngées, in the same article in 1869, also described in a case laryngeal ataxia. Unfortunately in this case no laryngoscopic examination was made. Only in the year 1878 Semon described for the first time the disturbances shown by a laryngoscopic examination; the vocal cords showed irregular retraction movements.

Fournier, in the year 1885, described in his lectures on *tabes dorsalis* of syphilitic origin, likewise as a symptom of *tabes*, failure of coördination of the vocal cords, he did not however call it ataxia of the vocal cords, but phonetic spasm (spasm aphonique, aphonia spastica).

In the years 1895-98, Krause, in his article on laryngeal disturbances in diseases of the central nervous system, also described a laryngeal picture, present in the laryngoscope, in ataxia of the vocal cords. It is similar to the one previously described by Semon; the vocal cords show a tendency to retract, in that they halt half way between the positions of phonation and inspiration; similar to the backward twitching of the eyeball, to which Friedrich gave the name of "atactic nystagmus."

Characteristic of the symptoms is the fact that atactic movements appear only on deep inspiration and phonation, never however during quiet breathing. Disturbances of

this kind of coördination of the vocal cords, I observed once in 21 cases of *tabes dorsalis*. (Case No. 4.)

Marina, however, observed it nine times in 36 cases; Gerhardt also observed ataxia of the vocal cords in this affection (twice in 122 cases) as also Semon and de Haviland Hall. The latter observed it as one of the earliest symptoms of *tabes dorsalis*.

In the same class (disturbances of coördination) belong, according to Burger, trembling (tremor, nystagmus, tremulous movements, Gerhardt) of the vocal cords.

It differs from that observed in *sclerosis disseminata*, as in this latter neurosis it appears only on efforts of phonation (intention tremor), whereas in *tabes*, and similarly in *paralysis agitans*, it is observed principally during respiration. Burger describes very exactly in his monograph (p. 128) disturbances of this kind, which he had the opportunity to observe in two cases, as follows: The position of the vocal cords in phonation, as also during normal respiration, is normal. In regular, deep breathing however, is observed, in abduction as well as in adduction, irregular movements of the vocal cords. It appears as though the vocal cords were suddenly arrested in their movement; they make a slight motion in the first direction, and then move quickly backward, in order to carry out the originally intended movement. In general the vocal cords on deep breathing or on equally deep respiration, instead of one, make two or three ab- and adduction movements. As a rule the abduction is more pronounced on inspiration, although the opposite may take place. As I have already mentioned, this writer (Burger) refers these disturbances of coördination also to ataxia.

Finally, the so-called perverse action of the vocal cords (B. Frankel, Semon) belongs to the disturbances of coördination, and is based on the fact that on inspiration the vocal cords approach one another, on phonation and expiration separate from one another. This is the underlying principle of the so-called inspiratory functional spasm of the vocal cords. This symptom, which is observed principally in hysteria, I had an opportunity to observe in one case of *tabes dorsalis* (case No. 18).

Although all of the above mentioned laryngeal disturbances, principally "crises laryngées," finally ataxia and

tremor (nystagmus) of the vocal cords, have a very real significance, for the reason, namely, that they so often appear in the very early stages of this affection, nevertheless, as regards importance, they are far beneath laryngeal paralyses, which are "par excellence" tabetic disturbances. I now come to these.

III. *Laryngeal paralyses in tabes dorsalis.*

These belong, as I have already mentioned to the most important disturbances, not only as regards their frequency, but also, at times, their earliest manifestations. Regarding the frequency of their appearance in tabes dorsalis the figures of different writers are at variance.

Whereas Dreyfuss only twice observed this above-mentioned laryngeal disturbance in 22 cases of this affection, others give a very marked per cent.; as for example Gerhardt, 17 times in 122 cases, that is, about 14 per cent.; Semon more or less the same, (14 times in 100 cases).; Berger gives still higher figures; 30 per cent. (6 times in twenty cases); Krause 34.2 per cent. (13 times in 38 cases); finally, Morina 38.8 per cent. (14 times in 36 cases). These differences which we see in the above figures may be explained by mere accident. That this is so, is proved by the fact mentioned by Semon; in 100 cases of tabes dorsalis, in the first series of examination of twelve cases of this affection, he observed seven pharyngeal paralyses; in the following 50 or 60, however, not even once, and again in the remainder (about 33 cases) seven times. According to my own observation I have seen paralysis eight times in 22 cases, more than $1\frac{1}{3}$ (36.3 per cent.). As I have already mentioned, I do not count in this enumeration case No. 1, since, besides tabes dorsalis, an aortic aneurysm existed at the same time, and upon this the paralysis of the right recurrent nerve was probably dependent. In the eight cases I observed right-sided recurrent paralysis once; bilateral posticus paralysis, twice; right-sided paralysis of these muscles (paralysis post. dex), twice; and finally incomplete posticus paralysis (paresis postici) three times, twice on the right and once on the left side.

In two cases, the tabes dorsalis was complicated by tuberculosis of the lungs. Hirschmann and Berger pub-

lished similar cases. In these few cases one can also explain the existence of laryngeal paralysis through pressure upon the recurrent nerve by the infiltration of the apex of the lung.

Burger gives, in his oft-quoted excellent monograph on laryngeal disturbances in *tabes dorsalis*, a table of the laryngeal paralyses, which includes all the known cases in the literature to-day, beginning with the year 1866, that is with Schnitzler's cases, and ending with the year 1891, that is during 25 years. The number of these observations is 71, including Burger's six cases. On the grounds of these statistics the writer is convinced that the so-called posticus paralysis is a tabetic symptom of *tabes* "par excellence."

My table embraces cases of laryngeal paralysis in *tabes dorsalis* since the year 1892 to 1898, that is, during the last six years. Including my eight, the number of these cases amounts to 53.

In this way the statistics of both Burger and myself include 124 cases now known in the literature of laryngeal paralysis in *tabes dorsalis*. From these statistics one may convince himself that the paralyses in *tabes dorsalis* almost exclusively affect the abductors. Only in two cases of Marina is paralysis of the internal muscles mentioned.

TABLE I. LARYNGEAL PARALYSIS IN TABES DORSALIS.

No.	Author.	Yr.	Kind of Paralysis.	Publication.	Remarks.
1	Grabower (Berlin)	1892	Paralysis postici sin.	D. med. Woch. 1892, No. 27.	
2	" "	1893	" " "	Berl. Klin. Woch. 1893, No. 21.	
3	Semon (London)	1893	Paralysis postici bilateralis	I. C. f. Lar. '93-94 p. 63	
4	" "	1893	Par. postici bilateral	I. C. f. Lar. '93-94 p. 161.	
5	Kronenberg (Solingen)	1894	" " "	Berl. Klin. Woch. 1894, No. 48.	
6	Pel (Amsterdam)	1894	" " "	I. C. f. Lar. 1877, p. 88.	
7	Hawkins (London)	1895	" " "	Lancet, 1895, June 1.	
8	Mader (Germany?)	1896	Par. postici sin.	I. C. f. Lar. 1877, p. 88.	
9	Grabower (Berlin)	1896	" " "	" " p. 319	
10	Gougenheim and Plé (Paris)	1896	Par. postici bilateral.	" " p. 431	
11	Gerhardt (Berlin)	1896	" " "	Notnagel's spec. Pa. & Th. '96 p. 55	
12	" "	1896	" " "	" " "	
13	" "	1896	" " "	" " "	
14	" "	1896	" " "	" " "	
15	" "	1896	" " "	" " "	
16	" "	1896	Par. postici dex.	" " "	
17	" "	1896	" " "	" " "	
18	" "	1896	" " "	" " "	
19	" "	1896	" " "	" " "	
20	" "	1896	Par. postici sin.	" " "	
21	" "	1896	" " "	" " "	
22	" "	1896	Par. recurrentis dex	" " "	
23	" "	1896	" " "	" " "	
24	" "	1896	Par. rec. bilateralis.	" " "	
25	" "	1896	" postici et crico-arytenoid.	" " "	
26	" "	1896	Par. postici et recurrentis	" " "	
27	Dundas Grant (London)	1897	Par. postici bilateral.	I. C. f. Lar. '97, p. 530	
28	Semon (London)	1897	" postici.	Heymann's Handbuch der Laryng. 1. Bd. p. 811.	
29	" "	1897	" " "	" " "	
30	" "	1897	" " "	" " "	
31	" "	1897	" " "	" " "	
32	" "	1897	" " "	" " "	
33	" "	1897	Par. postici bilateral	" " "	
34	" "	1897	" " "	" " "	
35	" "	1897	" " "	" " "	
36	" "	1897	" " "	" " "	
37	" "	1897	" " "	" " "	
38	" "	1897	" " "	" " "	
39	" "	1897	Par. recurrentis	" " "	
40	" "	1897	" " "	" " "	
41	" "	1897	" " "	" " "	
42	Petren (Stockholm)	1897	Par. post. bilateralis	I. C. f. Lar. '98 p. 10	
43	Petren (Stockholm)	1897	" " "	" " "	
44	Chlari (Wien)	1898	" " "	" " p. 3	
45	Schulz (Berlin)	1898	Par. postici dex. later. par. recurrent dex. finally par. postici-bilater.	Berl. Klin. Woch. 1898, No. 12.	Improvement aft. specific treatment (syphilis)
46	Senzia (Warsaw)	1898	Par. recurrentis dex.	Not published	Crisis gastriques
47	" "	1897	Par. post. bilateralis	" "	Crisis laryng.
48	" "	1897	" " "	" "	Crisis laryng. et gastriques
49	" "	1897	Par. postici dex.	" "	
50	" "	1897	" " "	" "	
51	" "	1897	Paresis postici dex.	" "	
52	" "	1897	" " "	" "	
53	" "	1897	" " sin.	" "	

Semon observed temporary (functional) abductor paralysis. Besides the abductors, paralysis of the adductors, also present, was diagnosed, principally the thyro-arytenoid muscles (Oppenheim, Gerhardt, Burger, Marina, Kroenig, Eulenberg, Hirschmann), seldom the cricothyroid (Eisenlohr).

Complete paralysis of the recurrent, that is, paralysis of the ab- and adductors was not often diagnosed; namely, 16 times in 124 cases (eight times on the right, twice on the left, and twice on both sides; these are the cases of Marina, which, however, are questioned by Burger and Gerhardt); in the four latter cases it was not stated which recurrent nerve was paralysed. In a few cases (Gerhardt Kahler) there existed, besides recurrent paralysis, posticus paralysis of the other side. Finally partial recurrent paralysis, that is paralysis of the crico-arytenoid muscles (paralysis postici) was observed in 87 cases; namely, bilateral 53, unilateral 34 times, right 11, left 14 times, and in the remaining nine cases, nothing was said in reference to the side on which the posterior-crico-arytenoid was paralysed.

In 19 cases, only paralysis of the vocal cords in general was noted, without further comment upon the more exact nature of this paralysis (paralysis recurrentis s. postici).

From this analysis one is compelled to regard the posticus paralysis, principally bilateral* as a special symptom of tabes concerning which Burger for the first time called attention, and with whom Semon and I agree. They can for years remain as such without going over into complete recurrent paralysis (in one case of Semon's eight years, in another 12 years).

Worthy of special notice is the fact that laryngeal paralysis may for a long time precede the other objective symptoms which are characteristic of tabes dorsalis (absence of patellar reflex, ataxic gait, etc.), as the cases of Semon (2 years) Grabower (1 $\frac{1}{4}$ years) and others (Löri, Lhoste, Fournier, Aronsohn, Burger, Rosenberg, Weil, Felici, Luc, Pel, Kronenberg, etc.) show. This plainly

*According to my own observations, I noted bilateral posticus paralysis much more infrequently than unilateral; namely, but twice in eight cases; two cases of unilateral recurrent paralysis, however, were undoubtedly accidental.

demonstrates the importance of laryngeal examination in every case of nervous disease, even though they be merely suspected, to which Burger and Semon long ago called attention.

As regards the symptoms characterizing paralysis of the larynx in *tabes dorsalis*, I must, *a priori*, remark that they are in the majority of cases absent; namely, in unilateral paralysis of the postici, neither hoarseness or disturbances of breathing (stenosis) are present.

Hoarseness is observed only in bilateral paralysis and principally in the extremely rare bilateral paralysis of the recurrent nerves; in the bilateral posticus paralysis, however, we have to do with symptoms of stenosis, which sometimes necessitate tracheotomy.

The diagnosis of laryngeal paralysis is, thanks to the laryngoscope, not difficult. The posticus paralysis is characterized by the position of phonation of the vocal cords, the paralysis of the recurrent nerves by the cadaveric position.

The prognosis of this form of laryngeal disturbance in the course of *tabes dorsalis* is with the single exception of bilateral posticus paralysis which brings with it the danger of suffocation, not so bad in so far as the underlying disease (*tabes dorsalis*) can afford a good prognosis. (?)

Treatment of laryngeal paralysis in *tabes dorsalis* is in the majority of cases useless, especially in the absence of pronounced subjective symptoms (hoarseness, dyspnea). On the other hand we resort to tracheotomy as an "*indicatio vitalis*," in cases where the dyspnea endangers life (intubation finds no supporters, as also the attempt at laryngeal fissure, or resection of the paralyzed vocal cords (Semon), electricity, also massage to benefit the voice in paralysis which give rise to hoarseness. Such maneuvers are, as is self-evident in these progressive organic affections, almost hopeless.

I need not add, that as always, so here, the general treatment is of the greatest importance. Unfortunately we are able to accomplish, as we know from experience, but little in these severe affections.

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ABSTRACTS FROM CURRENT OTOLOGIC, RHINO- LOGIC AND LARYNGOLOGIC LITERATURE.

I.—EAR.

Non-operative Cases of Acute Inflammation of the Mastoid Cells.

GORHAM BACON, New York. (*Archives of Otolaryngology*, Vol. XXX, No. 1.) Of forty successive cases of acute purulent otitis media complicated by acute inflammation of the mastoid cells, a radical mastoid operation was required in but ten cases.

The routine method of treatment is as follows: The patient is put to bed and given a very light diet. Calomel is given in $\frac{1}{10}$ gr. doses every hour till six doses are given. Tincture of aconite one drop every hour. If the mastoid is tender on pressure, the artificial leech is used behind the auricle and then the Leiter coil applied for at least forty-eight hours. In this way the pain is frequently relieved at once. Meanwhile the mt. must be closely watched and as soon as there is any bulging a free incision should be made in the mt. along its posterior border from a point behind and below the stapes to the lower border of the canal. After incising the mt. we promote the discharge by frequently douching the ear, with boracic acid or bichlorid solution. Cultures should be made of the pus from the tympanum. When infection is due to the presence of streptococci or pneumococci in large numbers, the disease is apt to run a severe course and frequently in spite of all treatment the mastoid cells must be opened. If after incising the mt. and applying the Leiter coil and if, after the appearance of a profuse discharge, the temperature remains elevated and the mastoid still tender, one can be very certain that the case is likely to require an immediate operation. When the pneumococcus is found in the discharge from the ear, the lungs must be examined, because the elevated temperature in such a case might be due to a central pneumonia, which is not always detected at once.

This conservative treatment should only be conducted by an experienced aurist, so that operation can be performed at a moment's notice in case of necessity. The Leiter coil should be employed only during the stage of hyperemia, never longer than forty-eight hours from the commencement of mastoid soreness and should never be used after pus has formed. *Campbell.*

On the Healing of Cerebral Abscesses.

PASSOW, Heidelberg. (*Archives of Otology*, Vol. XXX, No. 1.) The opportunity to examine a recently cicatrized cerebral abscess, was given to the author by the suicide of a patient on whom he had operated seventy days previously. At the autopsy it was found that recovery had taken place.

An acute otitis had caused a mastoiditis, and the formation of a perisinuous and a small cerebral abscess. The skull-cap was thick and the dura in several places adherent to the bone. In lifting the brain a piece the size of a large pea remained attached to the tegmen tympani. This left a defect in the brain, from which a barely visible cicatrix 1.5 cm. long, without pigment, softening or fibrous tissue could be traced in the brain substance.

Macewen states that the cavity of even large cerebral abscesses of acute origin, fills up within a few hours after their evacuation, by the expansion of the formerly compressed brain-tissue. The same had happened in this case and at the autopsy nothing could be seen of the upper part of the abscess but a barely visible linear scar. Only the part next to the dura had not closed immediately, but was filled with cicatricial tissue continuous with the cicatrix of the dura.

Microscopic examination shows the dura mater around the cicatrix thickened. It thins out toward the perforation and is entirely missing for a distance of 1.5 mm.; there it is replaced by a thin layer of connective tissue which consists of spindle cells interspersed with leucocytes. The pia mater is closely attached to the dura and is gradually lost in the cicatrix. *Campbell.*

Report of Three Cases of Ligation of the Internal Jugular for Septic Thrombosis Following Purulent Otis Media—Recovery.

DENCH, New York. (*Archives of Otology*, Vol. XXIX.

No. 6.) Case I. A young woman, who had suffered from chronic suppurative otitis since childhood. On removing the carious ossicles and curetting the tympanum, a dehiscence was found in the floor of the tympanic cavity and the jugular bulb was entered. Four days later, symptoms of general sepsis developed, with tenderness below and in front of the mastoid process. Operation exposed the internal jugular, from a point just below the omo-hyoid muscle to the jugular bulb. A thrombus was found about a quarter of an inch below the base of the skull. The vessel was secured between two ligatures just below the omo-hyoid and all tributary vessels tied off in the same manner and divided. Two ligatures were now passed about the upper part of the vein, and the entire portion involved was carefully dissected out. Both bulb and sinus were explored and found in normal condition.

The temperature at once fell and recovery was uninterrupted.

Case II. A man, aged 30, had suffered from acute sup-puration of the middle ear for about eight weeks. On account of involvement of the mastoid it was opened and in removing carious bone the sigmoid sinus was exposed. As the walls of the sinus seemed thickened, the vessel was opened and a small clot removed. The patient did well for one week, then symptoms of profound sepsis appeared. The jugular was exposed from the base of the skull to a point just above the clavicle. Both vein and its tributaries were filled with fetid clot. The operation was carried out as in Case I, and the patient made a complete recovery.

Case III. A young man had acute middle ear suppuration with mastoid involvement. The mastoid was opened, the internal table of the skull covering the sinus was found to be involved. The sinus wall was extremely thick, and upon incision no bleeding occurred. By means of the curette a firm clot was removed. The curette was carried upward toward the torcular and downward toward the bulb until free bleeding followed. Thirty-six hours later septic symptoms developed. Upon exposing the internal jugular, the vessels and its tributaries were found filled with soft clot. The vein was drawn upward from beneath the clavicle, secured with two ligatures and di-

vided between them. Every tributary vessel was sought for and ligated. Two ligatures was passed about the vein close to the base of the skull and vessel divided between them. As hemorrhage was very free and it was impossible to remove the vein completely; the wound was firmly packed with iodoform gauze. Recovery was perfect, the patient being discharged in three weeks. *Campbell.*

Shall the Antrum be Opened in All Acute Empyemas of Mastoid Cells?

SNYDACKER, Chicago. (*Archives of Otolaryngology*, Vol. XXIX, No. 6.) Operators in such conditions may be divided into three classes; (1) those who open the antrum mastoideum in all acute empyemas of the mastoid cells; (2) those who open the mastoid cells without opening the antrum mastoideum; and (3) those who occupy a position intermediate between the other two.

The author cites Schwartze as an exponent of class (1), Politzer of class (2) and Hessler of class (3).

In order to combine the advantages of the methods and eliminate their disadvantages, the following rules have been formulated by Urbantschitsch, as to when the antrum must be opened in acute empyemas: If meningeal symptoms are prominent, if a fistula leads toward the antrum, if the posterior superior wall of the meatus is bulged forward or when signs of inflammation are localized in this region.

In every operation for acute empyema of the mastoid cells, unless the operator makes it a routine practice to open the antrum he must ask himself these two questions: Is the antrum drained? Has it undergone such pathologic changes that it is a focus of infection? If he is in doubt on either of these two points, then he must open the antrum.

Every time the antrum is opened in acute empyema, the first opening into it should be merely exploratory, and if no pus wells up, no granulations, no polypi, and if by careful examination with the probe no pathological changes are found, then the relation of parts should be disturbed as little as possible. *Campbell.*

A Case of Lateral Sinus Pyemia and Cerebellar Abscess.

WATERHOUSE, London. (*British Medical Journal*, March 30, 1901.) The patient, an adult, with a tuber-

culous family history, had had ear discharge nearly all his life; later had a supramastoid abscess and hip joint disease. Two weeks before coming under observation there developed deafness, fever, frontal headache and later rigors, but no vomiting. Temperature, 104.2 F. with slight discharge. No pain or tenderness of cranium. Cardiac pain and murmurs developed a few days later, accompanied by profuse perspiration and symptoms of lung involvement. Ten days after admission to the hospital, the left lateral sinus was explored and a purulent thrombus found. A few days later streptococci were found in the blood. Great improvement took place during the next six weeks; then he began to have headache and some delirium. Blurring of the margin of the optic discs developed into complete double optic neuritis. The left knee jerk was increased with slight ankle clonus. He occasionally vomited, became comatose with Cheyne-Stokes breathing and a pulse of 50. An anesthetic was tried but caused respiratory failure. No pus was found in the temporo-sphenoidal lobe, but the exploring needle, being plunged through the tentorium cerebelli revealed pus. The bone over the left cerebellar hemisphere was removed and several drachms of fetid pus escaped.

Recovery gradually took place, leaving a marked speech defect and paralysis of the right external rectus.

Campbell.

Aural Complications of Scarlet Fever, with Twelve Post-Mortem Observations.

VON GAESSLER, Munich. (*Archives of Otology*, Vol. XXIX., No. 6.) The author reviews the literature on these complications, which were first recognizd during the second half of the eighteenth century, and the result of his observations tend to show a relation of the middle ear disease to the exanthem. Simple hyperemia, secretory process, fibrinous exudate form the progressive states of the ear disease due to infection.

The fibrinous deposit in the middle ear, in the pharynx and in the tubes, and the purulency of the atlanto-occipital joint, present the most intense state of infection. In a single instance in which the cartilaginous portion of the tube showed evidences of recent inflammatory alterations, the opinion of Moos, that infection can spread along

the tubal mucous membrane, seems tenable. The normal condition of the cartilaginous tube in all other cases, lends strong probability to the view, that, the ear disease is a manifestation of the general infection, and not an extension of the infectious process, in continuo. In scarlet fever, the condition seems analogous to measles and diphtheria, in which, an invariable participation of the ear has been proven. *Campbell.*

Diagnosis and Prognosis of Ear Disease.

ALEX. RANDALL, M. A., M. D., Philadelphia. (*Jour. A. M. A.*, March 23, 1891.) A review of the armamentarium required to make a diagnosis and estimate the prognosis in cases of loss of hearing. Tuning forks and the Galton whistle are spoken of. The author finds most forms of Galton whistle as sold by the instrument makers to be unsatisfactory and inaccurate. *Richards.*

The Akouphone and Its Limitations.

J. A. KENEFICK, M. D., New York. (*Medical News*, April 13, 1901.) The akouphone is a mechanical aid to hearing, the instrumental part of which may be considered as a telephone, the electric force of which is supplied by a compact storage battery of six volts. "The transmitter is fitted with one or a series of dome or funnel-shaped resonators for the purpose of gathering in and concentrating sound waves from all sources in its immediate neighborhood. Its receiver is so constructed that all sounds conducted to it are reproduced or retransmitted with such force and intensity as to produce a searching and sonorous wave of peculiar intensity and penetration which is magnified still more on account of the closure of the external auditory meatus by the instrument which is held so as to completely cover it." In ordinary use the battery is fastened about the body, while the transmitter may be held in the lap or laid upon the table. The receiver has a handle, so that it may be held in close contact with the ear, and it is to a certain extent under control as to the intensity of its action. It can be used at the opera or lecture, and for the instruction of deaf mutes.

The author regards the apparatus as still crude from the aurist's point of view, its present method of application being a good deal like providing an arc-light for an individual with failing eye-sight without regard to the

conditions of refraction or the optic nerve. It seems to find its greatest field of usefulness in aiding the teaching of articulate speech to deaf mutes. A deaf mute of 18 years who had practically never heard anything was able to hear speech by means of this apparatus.

In that large class of cases in which the membrane and ossicles are intact but sclerotic, while the nerve is yet free, this apparatus, when the receiver is held close against the ear, produces such a condensation and intensity of sonorous waves as to be practically unbearable. In these cases the tensor tympani has no function and fails to protect the hyperesthetic nerve terminals in the labyrinth against these new sound waves. The adjustability of the instrument as at present made is not sufficient to render it practically applicable to these cases, which are the ones that most often seek artificial aid. It would seem to be of most use in cases in which the membrane and ossicles are gone, but as these patients usually hear the loud voice fairly well they do not often seek artificial aids. In cases where the lesions are central the apparatus has no value.

Richards.

Electrolysis in the Destruction of Organized Structures of the Eustachian Tubes.

JOSEPH A. KENEFICK, M.D., New York. (*Archives of Otolology*, Vol. XXX., No. 2, 1901.) The author reports further in reference to this method, first described by Dr. Arthur B. Duel, in the American Journal of Medical Science for April, 1900, and reviewed at length as to the details in the November number of the Annals. He has tried this method in the cases of tough, leathery, non-vascular, resistant Eustachian tube obstructions, cases which have gone the rounds of the specialists and pseudo-specialists. After insulating the catheter, passing the bougie as far as the point of stricture and turning on the current three to five miliamperes at 20 to 30 volts.; "Within a fraction of a minute usually, sometimes longer, according to the extent of the stricture, the bougie passes through and is felt free in the space beyond." After experience with this method one should be able to feel the tip through its entire length, and judge of the number and extent of the obstructions present. In many cases the obstruction is found almost at the tympanic orifice,

while in other cases it is only about one-quarter of an inch from the mouth of the Eustachian tube. The tympanum should be entered at the first sitting in every case in which it is possible to do so. The pain and distress caused by the procedure is small if the current is properly managed and severe pressure on the electrode avoided. A slight feeling of soreness follows. If pain is experienced in the throat it is probable the bougie is being pushed along the pharyngeal wall. Some reaction, and even closure of the tube may follow within the first twenty-four hours, but at the end of that time it is succeeded by a clearing-up process. No accidents have occurred in connection with its use. Several cases are reported showing relief from vertigo and noises, with increase in the hearing distance.

(The reviewer has personally seen one of Dr. Keneffick's patients, who stated to him that the relief which had been afforded him by the process of electrolysis was almost as great as that which would be effected by glasses that would restore to almost perfect sight a person nearly blind.) *Richards.*

Bony Defects and Fistulae in the External Meatus.

H. GRADLE, M. D., Chicago. (*Jour. A. M. A.*, March 2, 1901.) Among some 2,000 ear patients the author has seen 12 cases of fistula between the meatus and attic of the middle ear. "The defect is usually a fissure of variable size in the external wall of the attic, opening through the external wall of the meatus above Shrapnell's membrane. In some instances it seemed to be a fistula instead of a complete gap, but it is not always possible to distinguish between the two conditions." This condition does not add to the gravity of the chronic case of discharge from the ear, nor is the treatment altered by the existence of bony defects. All pent-up discharge and cholesteatomatous masses must be removed, and also any granulations if they interfere with drainage.

Complete cure is possible if no odor is present. The cavity is cleaned by intratympanic syringing and the use of the curette, followed by boric acid powder. If the odor does not yield in a few days, treatment seems to be of no avail. Gauze drainage he regards as the most efficient of all the methods of treating chronic suppuration of the ears, and will often take the place of more radical opera-

tive measures, though it will not always do so. He is doubtful at times regarding the permanency of cure by gauze drainage. Of late, instead of gauze strips he has used strips of sterile blotting paper, one-half a millimeter wide and 20 long. "They can be inserted through the speculum with scarcely any discomfort, and made to touch the drumhead or exposed internal wall of the middle ear. The auricle is then packed with gauze, powdered with a mixture of boric and salicylic acids." *Richards.*

Aural Manifestations of Syphilis.

FRANCIS R. PACKARD, M. D., Philadelphia. (*Jour. A. M. A.*, Feby. 2, 1901.) Seven cases of syphilitic disease of the ear are reported out of 2,500 consecutive cases treated in the out-patient department for the ear, of the Pennsylvania Hospital. The author does not regard syphilis as a very frequent source of ear disease, as it is mentioned comparatively infrequently. Primary syphilis of the external ear has been reported by various authors, though very infrequently, while the secondary and tertiary manifestations may invade the auricle and canal the same as any of the cutaneous lesions of syphilis.

In the middle ear, syphilis most often originates from infection through the Eustachian tube. Inherited syphilis also affects the middle ear in the form of the so-called strumous otorrhea in children where the breaking down of the bone is of syphilitic origin.

Where the internal ear is affected it is very late in the course of syphilis before lesions in this part manifest themselves. Tinnitus and deafness and the loss of hearing in both ears is present though it may be the case that only one ear is affected. Facial paralysis of one side is a not infrequent phenomenon.

An exhaustive review of the literature, with reference to a large number of reported cases of syphilis of the ear are given. *Richards.*

Systemic Factors in Catarrhal Deafness.

SARGENT F. SNOW, M. D., Syracuse, N. Y. (*Jour. A. M. A.*, March 23, 1901.) The author thinks that better results can be obtained in catarrhal deafness than are usually gotten, if more attention is paid to the systemic factors such as the avoidance of frequent colds, the looking after the condition of the liver and the digestive

organs, since he regards catarrhal deafness as often dependent upon very many causes or combination of causes, among which may be mentioned sluggish skin reaction, low vital force, and a lack of proper exercise.

Richards.

Treatment of Chronic Otorrhea.

FRANK ALLPORT, M. D., Chicago. (*Jour. A. M. A.*, March 2, 1901.) The various methods of treatment are described, and the question discussed at length as to what are the indications for the radical operation of opening the mastoid cells and antrum for the cure of chronic discharge from the ear. The choice of procedure depends upon many circumstances. As many cases of chronic discharge of the ear are cared for without operation, there can be no sharply drawn line as to when operative interference should step in. If the disease invades the antrum, and the discharge remains persistently foul and profuse for several months in spite of proper local treatment radical operation is perhaps demanded. This is more likely to be the case if the discharge is cheesy or flaky or contains streptococcus, influenza or tubercle bacilli, and if the tympanum has been previously cleared by ossiculectomy and curettage.

Richards.

Two Cases of Ligature of the Internal Jugular Vein for Infective Thrombosis of the Sigmoid Sinus, Due to Purulent Otitis Media; One Recovery and One Death.

FREDERICK L. JACK, M. D., Boston. (*Boston Medical and Surgical Journal*, Feby. 28, 1901.) In the first case there had been a suppurative middle ear inflammation of the right ear of two months' standing, with pain in the ear and right side of the head. The auditory canal was filled with purulent discharge, posterior wall bulging, tympanic membrane dark in color and boggy, with a small perforation in the posterior quadrant, and mastoid process tender to pressure over the tip. At the end of five days the temperature rose to 101, with a chill, and the mastoid antrum and middle ear were opened in the usual way and found filled with pus and granulation tissue. The sigmoid sinus was exposed for three-quarters of an inch, and the wall found thickened and covered with granulation tissue. The next day there was a chill, and the temperature was 102. On changing the dressing the sinus

wall appeared dark in color, without pulsation. It being evident that the sinus contained pus and disintegrating thrombus it was deemed safest to ligate the internal jugular, and prevent further septic absorption. An incision was made one inch below the tip of the mastoid along the inferior border of the sterno-cleido muscle, and the dissection continued down to the large vessels of the neck and the vein separated from the sheath. An aneurism needle was passed under the vein, and the vessel ligated with catgut. The incision was closed with silk. The sigmoid was opened, and a small thrombus containing pus was removed. The wound was cleaned and lightly packed with iodoform gauze. For three days there were no special symptoms, but on the fourth there was a chill, the temperature rose to 101. followed by two more chills with a temperature elevation from 101 to 104. A week after the temperature dropped to 95. after which recovery was uninterrupted, and he was discharged from the hospital thirty days after ligating the vein, both wounds being perfectly healed.

Case second, had a history of discharge from the ear for several years, was admitted to the hospital complaining of intense pain over the left side of head and rigors, the general condition being alarming. Temperature 106, pulse 120. There was no mastoid tenderness. Pressure over the upper half of the internal jugular and cervical triangle was painful; auditory meatus filled with fetid pus; drum membrane thickened and perforated. Mastoid operation was performed; antrum found filled with granulations and pus; sigmoid groove removed with difficulty, bone being very hard. The sinus was found thrombosed, covered with foul-smelling pus and sloughing tissue. It was opened upward into the posterior fossa of the skull and downward toward the bulb of the jugular, and was found to contain a decomposing thrombus to the exposed limit in each direction. The internal jugular was then ligated as in the previous case, and the vein filled with fluid blood; ligation was difficult, owing to the free venous hemorrhage which obscured the jugular. Both the faucial and lingual branches were ligated. The thrombus then removed by means of the curette, from the bulb clear into the posterior fossa of the skull. The operation was poorly

borne. Condition of the patient was fairly comfortable for two days, but on third day the temperature rose to 107 and conditions all became alarming, and he died nine days after the operation.

At the autopsy there was a layer of pus between the dura and the skull on both sides of the sinus, spreading over the posterior portion of the petrous bone, extending well into the cerebellar fossa.

The author regards every hour of delay in removing the source of infection as lessening the chances of recovery. The second case having been seen when all the conditions were extremely grave the chance for recovery was much less than in the case of the first. In acute cases he thinks it is better to remove the purulent material in the sinus until a healthy clot is reached before ligating the vein.

"After this operation, if rigors and elevation of temperature recur immediately, ligate the jugular vein and then remove the entire thrombus above and below until a free flow of blood takes place. If at the original operation no healthy clot is found, ligate immediately. In chronic cases no time should be lost in ligating the vein and completely removing the thrombus." *Richards.*

The Control and Prevention of Ear Diseases among School Children.

LOUIS J. LAUTENBACH, A.M., M.D., Philadelphia. (*Jour. of A. M. A.*, Dec. 22, 1900.) The author thinks that all school children should be systematically examined by the teacher as to their hearing and ability to breathe through the nose. Inquiry is to be made in regard to pain, discharge or odor, past or present, in either ear. The breathing is to be tested through each nostril separately; and pupils are to be questioned as to breathing through the mouth at night, or if the throat is dry in the morning. Each ear is to be tested as to hearing by questions which require answers, asked at a distance of 20 feet, and by the watch from three to five feet away. Any defects are to be noted on a printed form, and the parents notified and advised to consult a specialist if the defects are at all marked. This examination, while not so accurate and thorough as could be desired, would often bring to the physicians' notice, in time for proper attention, con-

ditions which now pass unnoticed until serious damage is done.

Richards.

Treatment of Deflection of the Nasal Septum.

E. B. GLEASON, M. D., Phila. (*Jour. A. M. A.*, March 9, 1901.) A description of the operation which the author has previously described, and which he regards as especially valuable for cases of deflection in the cartilaginous portion of the septum. A U-shaped flap is sawed out of the deflected portion, its resiliency destroyed at the point where it is left attached above, and the free portion of the flap then pushed through into the previously open side. A tube is inserted in the previously occluded side for 24 hours. Full details of doing this operation are given.

"The writer claims for his method of operating that the shape and position of the septal flap enables an operator to overcome resiliency more certainly than by any method previously described."

Richards.

Treatment of Atrophic Rhinitis by Electrolysis.

CAROLUS M. COBB, M.D., Boston, Mass. (*Jour. A. M. A.*, March 16, 1901.) The author regards many cases of atrophic rhinitis to have their origin in nasal empyema, and whenever this is the case, a sufficient amount of the middle turbinate should be removed to improve the drainage. Careful search should be made for sources of pus in the accessory sinuses in all cases of atrophic rhinitis.

He has used electrolysis in a number of cases of atrophic rhinitis, with needles of copper, platinum and steel, and thinks that "There can be no doubt that we have in interstitial electrolysis a remedial agent of undoubted efficacy, and that we may confidently expect from its use, in a large percentage of the cases at least, that the odor will cease, that the crust formation will be lessened, that the nasal mucous membrane will become moist and healthy in appearance, and that the secretion will become liquified and lose itsropy, sticky character, and that these results will last for several months."

Unfortunately, the author does not give the details as to just where and how he applies his needles, nor the voltage and amperage which he is in the habit of using, nor the length of time or frequency of the sittings.

Richards.

II.—NOSE AND NASO-PHARYNX.

Contributions to the Normal and Pathologic Histology of the Pharyngeal Tonsil.

FRIEDRICH WEX, Rostock. (*Archives of Otolaryngology*, Vol. XXIX., No. 6.) The author gives a detailed account of the normal histology of the pharyngeal tonsil in the young infant. In all but one instance the tonsils were covered with ciliated columnar epithelium. Slightly horny epithelium covered the tonsillar surface in the single instance, that of a five-day-old child, but without extension into the lacunae or into the mouths of the ducts.

The author then relates his cases of tuberculosis of the pharyngeal tonsil in which he found tubercle bacilli in six out of the seven reported cases.

In reviewing the literature the author finds that in 599 examined there were 33 cases of tuberculosis, making 5.51 per cent.

Campbell.

Dermoid Polypi of the Pharynx.

LECLOUX. (*Bulletin de Laryngol., Otol. et Rhinol.*, March 30, 1901.) We sometimes find in the pharynx structures of special development and particular form which are called *dermoid* polypi of the pharynx. They are of different sizes, not exceeding that of the thumb, pediculed and solitary. They are covered with a cutaneous envelope, with epidermis.

Their central part is composed of cellular tissue enclosing vessels, muscular fibres and develop from the bronchial arches. We know that a large part of the bronchial pocket is covered by an ectodermic membrane; if we suppose that at the niveau of one of the clefts a portion of the mesoderm should develop in an abnormal fashion and grow, surrounded by its cutaneous envelope, toward the interior of the throat, we have the way in which a vegetation and a dermoid polyp is produced.

The point of insertion is the niveau of the region of the eustachian tube or the posterior aspect of the velum.

The constitutional signs are those of all tumors of the pharynx. These tumors are greyish white, almost reddish. They are of firm consistency with harder spots for the cartilage. These objective characteristics added to their special implantation give a sure diagnosis. Extirpation, by cutting their pedicle with the scissors, is their only treatment.

Treatment of Hypertrophic Rhinitis, with a Sub-Mucous Injection of Zinc Chloride.

M. GAUDIER. (*Gaz. des Hôpitaux*, Feb. 26, 1901.) The writer employed in ten cases this method, which was first published by Hamm in 1898. He makes use of a hypodermic syringe, with a capacity of two cubic cm., and a needle of irido-platinum. The strength of the solution employed was one to ten. Cocain was applied only to the spot where the needle is inserted. The needle was inserted in the anterior portion of the turbinate as near the bone as possible. The fluid is injected slowly, while the needle is withdrawn. The floor of the nose is protected by a pledget of cotton. The reaction is not great. There is a certain amount of discomfort and of swelling of the turbinate, which occludes the nasal passage completely. This is, however, of short duration, and after several days the turbinate has resumed its normal size. The results of the treatment obtained in these cases were not constant, and the writer concludes that this method is not capable of replacing deep cauterization or resection of the turbinate. *Goodale.*

III.—MOUTH AND PHARYNX.

The Tonsils as a Port of Entry for the Tubercle Bacilli.

F. BAUP. (*Bulletin de Laryng. Otol. et Rhinologie*, March 30, 1901.) The author after having reviewed the structure of simple tonsillar hypertrophy, shows that tuberculosis larvée of one or more tonsils exists as a primary manifestation of tuberculosis.

It is a rare affection manifesting itself in the tonsils in different ways; sometimes by typical tubercles, at other times by a diffuse infiltration.

The inoculation of guinea-pigs by pieces of tonsils confirms the histologic results.

Direct tuberculization of the tonsils of animals is possible, but a delicate proceeding.

The author after having placed colonies of Koch's bacilli on the tonsils of rabbits has been able to cause profound lesions of the tonsillar tissues. But he never found bacilli or tubercles—the peritonsillar and cervical glands were caseous.

It seems then, says the experimenter, that the tonsil has been the port of entry.

In regard to the symptomatology of tonsillar tuberculosis, it is very vague and the diagnosis can only be suspected from an observation of the general state and the relations which connect tonsillar tuberculosis with that of the ganglia of the neck, middle ear and intestines.

Contributions to the Study of Tonsillar Affections and Their Contagion.

L. DUVAL. (*Bulletin de Laryngol. Otol. et Rhinologie*, March 30, 1901.) Tonsillites are essentially infectious. They appear with diversified clinical aspects. Usually they are very benign; but can give way to fatal complications. Sometimes the constitutional symptoms are so pronounced that they mask the local state completely.

We can cite among the complications, phlegmon of the neck, gangrene, pleurisy, pneumonia, swelling of the liver and spleen, ovaritis, orchitis, nephritis, erythema and the arthropathies.

It is necessary, as Landouzy says, to try to remove the clinical doubts by bacteriology which will show the truth when confusion, doubt and hesitation leads us into error.

Yet recent investigations seem to show that there is no specific micro-organism of tonsillitis.

Tonsillitis should be regarded as one of the manners of the localization of a virulent infection; streptococcic, staphylococcic. According to the degree of intoxication, the tonsil alone reacts or other morbid manifestations appear.

Since it has been well established that tonsillites are of infectious nature, we may deduce that they are contagious. This the author tries to establish by a series of observations.

Contributions to the Study of Testicular Manifestations in Acute Tonsillitis.

A. TESSEYRE. (*Bulletin de Laryng. Otol. et Rhinol.* March 30, 1901.) After a very complete history, etiology and symptoms which show the almost complete clinical analogy between tonsillar orchitis and the well-known simple orchitis, arrives at the following conclusions, basing them on a personal fact and six other observations chiefly of Verneuil or Joal:

Orchitis may be observed in the course of acute tonsillitis, or in their period of decline; generally benign, usually terminating by resolution; finally, rarely relapses, as opposed to tonsillitis where returns are frequent.

Acute Ulcero Membranous Angina, Due to Bacillus Fusiformis of Vincent and Spirilla in Infants.

A. ATHANASUL. (*Bulletin de Laryng. Otol. et Rhinologie*, March 30, 1901.) Prof. Vincent, of Val-deGrace, was the first (1893) to report a special and rare form of angina, describing in the adult a clinical and anatomopathologic evolution almost pathognomonic. He gave at the same time a complete description of the bacillus fusiformis and the spirillum, attributing to them especially from the first a specific pathogenic role, in spite of the absence of control experiments.

Hospital putrefaction has the same specific agent as the angina ulcero-membranosa.

The author sets forth the reasons which caused him to accept the conclusions of Vincent. He reports a certain number of observations on Vincent's angina with bacteriologic control.

He insists on the difficulty of diagnosing from diphtheria. Only the bacteriologic examination of the crypts and shreds will prevent a mistake which might be disastrous.

In the stage of ulceration, the bacteriologic examination of the exudate will permit the elimination of primary and tertiary syphilitic lesions.

Termination is favorable in all cases.

The very simple treatment consists of nasal and oral lavage with a weak solution of potassium permanganate.

Tubercular Perforation of the Palate.

MARCEL GROCLER. (*Bulletin de Laryng. Otol. Rhinol.*, March 30, 1901.) Tubercular perforation of the veil of palate may be primary, and of the character of a purely local lesion; nevertheless, usually (six times out of eight) it follows a pulmonary or laryngeal tuberculosis.

It always accompanies tubercular ulcerations of the lips, gums, palate, tongue, tonsils and pharynx.

The ulcerations present irregular polycyclic borders with yellowish granulations. They prefer the middle part of the velum. They may be confounded with syphilitic

perforation. The latter affects especially the osseous walls, and their borders are more sharp. The remainder of the mucosa is red and does not show the ulcerations and paleness of tuberculosis. Single in tuberculosis, it is often multiple in syphilis.

The perforating buccal disease coexists with other manifestations of tabes.

The treatment is first of all general; locally we may use lactic acid (one to ten), Ziehl's solution, chromic acid, tincture of iodine and cauterization.

Investigations on Ulcero-Membranous Stomatitis, Ulcero-Membranous Angina with the Fusiform and Spiral Bacilli.

LOUIS LESNER. (*Bulletin de Laryng. Otologie et Rhinologie*, March 30, 1901.) According to the author, diphtheroid angina due to fusiform bacilli, described by Vincent, is clinically and bacteriologically analogous to ulcero-membranous stomatitis. It is perhaps only a localization of this disease on the tonsils.

The reasons given for his opinions are:

(1) In both cases the disease chooses its object in the same class of individuals, i. e., people weakened by fatigue, defective and insufficient alimentation, an anterior affection or presenting local irritative causes; bad teeth or oral uncleanness.

(2) The beginning, equally insidious, is manifested by local troubles; pain on mastication and deglutition, with or without light fever.

(3) In both cases the lesions consist of an ulceration with a rough floor and borders surrounded by an inflammatory zone. This ulcer is covered by a false membrane of greater or less adherency and consistency, of grayish color. The breath is fetid.

(4) The affected part is frequently unilateral in angina as in stomatitis.

(5) Glandular swelling of the affected side.

(6) The benign and short course of both diseases when treated.

(7) The necrobiotic process, which commences in both cases with the destruction of a part of the mucosa with the formation of a pseudo-membranous exudate.

(8) Finally, the author adds to all these reasons the

simultaneous or successive presence of buccal and tonsillar lesions, and their simultaneous evolution, in the new observations reported in his thesis.

Furthermore, the collection of the observed facts gives cause to believe that the fusiform bacillus of Vincent and Bernheim is the pathogenic agent of this double affection.

Association with spirilla seem to facilitate the development of the fusiform bacillus.

This bacillus nominally exists in the mouth, but in scant numbers. It becomes more abundant under the influence of certain inflammations. In mercurial stomatitis its importance becomes considerable, especially since it produces ulcerations, which are covered by a whitish membrane. Then, with the spirilla, it comprises almost the entire flora, which makes the author think, in agreement with Galippe and the Germans, that this disease is perhaps only a variety of stomatitis ulcero-membranosa.

In case of difficulty to diagnose the ulcero-membranous lesions of the mouth and tonsils, a direct examination of a piece of false membrane and a culture will take away all doubt.

Pharyngeal Adenoids and Hypertrophied Tonsils.

J. H. WOODWARD, B.S., M.D., New York. (*Medical News*, Feb. 23, 1901.) Diagnosis of pharyngeal adenoids should be made by a physical examination of the nasopharynx. While in many cases the adenoids grow smaller around the age of puberty, they should be taken care of earlier on account of the symptoms which they produce; such as faulty development, and the danger of deafness and other ear troubles.

The author operates under chloroform, and uses the Gottstein curette. He does not regard chloroform as an anesthetic for the removal of adenoids and tonsils so dangerous as it is reputed to be, nor ether so safe as many are apt to assume.

He has never seen a patient who had not been improved after tonsillotomy, nor any ill effects from the removal of the faucial tonsils; on the contrary, all such patients have been benefitted by the operation. *Richards.*

Epistaxis.

CHARLES H. COX, M. D., Brooklyn, N. Y. (*Medical News*, April 20, 1901.) Most cases of epistaxis have their

origin in the cartilaginous septum, and are most effectually treated by pressure applied directly to the bleeding surface, the point from which it comes having been accurately ascertained. A 20 per cent. solution of ferropyrin in water, four per cent. antipyrin, alum and peroxide of hydrogen are regarded as the most valuable hemostatics for capillary hemorrhage; Monsell's solution is absolutely condemned. Posterior plugs are very rarely needed. *Richards.*

Modes of Infection of the Maxillary Sinus.

M. H. CRYER, M. D., D. D. S., Philadelphia. (*Jour. of the A. M. A.*, Nov. 24, 1900.) Dr. Cryer does not believe that the general impression among the medical and dental professions that the majority of diseases of the antrum are brought about by infection from diseased teeth is a correct one. In their development the accessory sinuses are associated with the nasal chambers, while the teeth are developed from an infolding of the mucous membrane of the mouth. In nearly all cases abscesses due to infected teeth have their fistulous openings into the mouth. A large number of sections from the author's own dissections are shown to illustrate his points, and for these, many of which are very instructive and valuable, the reader is referred to the original article.

Dr. Cryer believes "That it is through the common communication between the frontal sinuses, the ethmoidal cells, and the maxillary sinus, that infection is generally conveyed to the antrum from the cells and sinuses above it, recognizing, at the same time, that the posterior ethmoidal and sphenoidal cells of the orbital process of the palate bone, can also infect the antrum by the resorption of the partition between these cavities." He also says, "There are more cases in which teeth are lost through diseases of the antrum, than cases in which the teeth are primarily diseased, causing infection of the antrum and associated cells." *Richards.*

A Foreign Body on the Uvula.

A. FRIED. (*Ungarische Medizinische Presse*, March 1, 1901.) A patient, 49 years of age, had been suffering for four days with constant nausea and vomiting, which had prevented him from even taking fluid nourishment. The symptoms dated from his having eaten on one occasion

plums directly from the tree, immediately after which pain in the throat was experienced. Examination of the pharynx showed the uvula to be much enlarged, and presenting on its lower portion a dark brown mass, about a centimeter in length, which had the appearance of a foreign body. Examination showed this to be embedded only at one end. On removal with forceps it was found to be an ant, which had bored deeply into the uvula. Twenty-four hours later the patient had completely recovered.

Goodale.

IV.—MISCELLANEOUS.

General Bodily Resistance as a Factor in Nose and Throat Diseases.

FRANK LOUIS STILLMAN, Columbus, Ohio. (*Jour. A. M. A.*, March 23, 1901.) This is a plea for a closer study of general bodily conditions in their relationship to diseases of the nose and throat.

Richards.

Clinical Experience with Adrenalin.

EMIL MAYER, M. D., New York. (*Philadelphia Medical Journal*, April 27, 1901.) The active principle of suprarenal gland has been isolated by Takamine in a stable crystalline form, which he has named Adrenalin. It is a light, white, micro-crystalline substance, showing itself in five different forms of crystals, has a slightly bitterish taste, and leaves a numbed feeling on the spot of the tongue where it has been applied. It is soluble in cold water with difficulty and more readily in hot water, is easily oxidized by air, changing its color from pink to red and eventually to brown, is easily soluble in acids or alkalies, but not in ammonia or alkaline carbonates. Various salts, as hydrochloride, sulphates, and benzoates, were used. These salts are not crystallizable. 1-10,000 of the aqueous solution blanches the normal conjunctiva within 30 to 60 seconds, and injected into the vein produces a powerful action upon the muscular system, and especially that of the heart, causing a rise in blood pressure. It is 625 times stronger than the suprarenal extract.

The author has experimented with solutions of varying

strengths, and with great satisfaction. He finds that the aqueous solution 1 to 1,000 to which chloretone has been added forms a stable solution which has remained clear and active for several weeks, though changing somewhat in color. In this solution the usual effects of suprarenal gland have been obtained, and he finds it sufficiently strong for all operative purposes, and for local medication 1 to 5,000 or 1 to 10,000 is strong enough. A table of 35 cases in which it has been applied is appended, in nearly all of which in cases of operations they were bloodless, even the Asch operation for deviated septum having been done under cocain bloodlessly. One case of angioma of the septum bled freely at first but was checked at once by a 1 to 1,000 solution, while in case of a excision of the middle turbinate which was nearly bloodless with a strength of 1 to 1,000, afterward followed by slight bleeding, the bleeding was checked by a 1 to 10,000 solution. In acute rhinitis and nasal polypi he found 1 to 10,000 solution to work satisfactorily, also the 1 to 10,000 solution as a spray for patient's use was followed by great relief.

Richards.

The Diagnosis and Treatment of Some Functional Forms of Defective Speech.

G. HUDSON MAKUEN, Philadelphia. (*Philadelphia Medical Journal*, Feb. 2, 1901.) The proper early training of young children would prevent the development of defective speech in a large proportion of cases; and the general health should be kept in the best possible condition. Baby talk should be encouraged only up to a certain point, and children should not be talked to in any but the best speech beyond a very early age, since all speech is a matter of imitation, and they imitate what they hear.

Stammering is an acquired defect, not congenital nor inherited beyond the fact that certain nervous conditions may predispose children to this affection, and in case a child's ancestors have stammered he should be very carefully managed. The attention of the child should never be called to the defect, nor should the word stammering be used in his presence, since a nervous dread of the affection is easily acquired. In its correction, and in all forms of imperfect articulation, each element of speech which is defective should be taken up sep-

arately, and the patient taught how to acquire the correct position of mouth, lips, tongue, and palate for the enunciation of those sounds, and close attention should be given to the character of each sound which he utters.

In the case of the stammerer it is not strictly a form of defective speech, since his difficulty is not with thought, but with his power of expression of that thought. He thinks in words but cannot speak in words. The stammerer has little difficulty in talking when alone or in the presence of dumb animals, and the author thinks that all stammerers can swear. Stammering is often brought on suddenly by a severe shock to the nervous system, due to the fact that the motor processes of speech are carried on mainly in the bulb and spinal cord, and anything interfering with this process will naturally result in disordered speech. The nose and the throat and the condition of the tongue should in all cases be carefully looked after, but surgery has no value beyond the correcting of actual deformities of the organs. The treatment of stammering as of other defects must be in the main educational. The nervous mechanisms of speech must be reached through the training of the muscles supplied from those nerves and employed in the processes of speech, the aim in all cases being toward volitional control of the muscles. Ingenuity is required in the individual case, and only persons of great patience and perseverance are suited to work over and treat these cases under the guidance of the physician.

Richards.

Our Duties Toward the Consumptive Poor.

S. A. KNOPE, New York. (*Medical News*, March 9, 1901.) The author thinks that state and city sanatoria should be provided for both incipient and advanced cases; the incipient cases because there is a strong likelihood that under suitable conditions they will get well, and the advanced cases because they are sources of great danger to the community as centers of infection. In the tenement house life, one consumptive is likely to infect not only those with whom he comes into immediate contact, but also to infect the walls, floors and furniture of the rooms in which he lives, so that the next tenant may therefore easily become a victim to the tuberculous nature of his surroundings.

Richards.

Tuberculosis as a Disease of the Masses, and How to Combat It.—Prize Essay.

S. A. KNOFF, M. D., New York. This essay was awarded the prize of 4,000 marks by the committee appointed by the International Congress for the "Study of the Best Way to Combat Tuberculosis as a Disease of the Masses," which convened at Berlin, May 24-27, 1899. It is published in German, Dutch, French, Italian, Russian and English, and is designed for the instruction of the community at large as to the nature of tuberculosis and how best to combat it. The essay is written in simple language and gives the main facts which everyone should know in regard to the theories and facts of the origin and spread of tuberculosis and the best methods of treatment in both home and sanatoria. It is sold in quantities for a very small sum,—15 to 20 cents, according to the number taken—and should be provided by boards of health for all those families in which tuberculosis is present. Inasmuch as a proper appreciation of the best methods of dealing with this disease is largely a matter of education, the wider the circulation of such an essay the more we shall be enabled to convince the community of the danger of tuberculosis and the need of its proper treatment and attempts at its final extinction. Dr. Knopf is to be congratulated on the essay in question.

Richards.

The City and Its Consumptive Poor.

ALFRED MEYER, M. D., New York. (*Medical News*, Oct. 26, 1900.) The author believes that every city and town should make provision for the care of that large number of tuberculous patients who are unable to care for themselves and who by living in their usual haunts become a source of infection and danger to the rest of the community, and that the money value to the city in lives saved would be very great, estimating the value of a life at \$5,000, which is the usual legal estimate. Besides this, the hygienic education of the patients, and their training in the proper disposition of the sputum will diminish the spread of the disease.

Richards.

The Treatment of Consumption at Home.

JOSEPH EICHBERG, M. D., Cincinnati, Ohio. (*Medical News*, Oct. 6, 1900.) Specific methods are of no value,

and only a small proportion of cases can be removed to so-called specific climates; most victims of the disease must be treated in their own vicinity, and if sufficient care is taken, and a dietetic and hygienic treatment properly carried out, very much can be done in almost any climate.

About 24 hours' worth of fresh outdoor air should be given every day. The patient must live out-of-doors. "In winter he does this by being warmly muffled up in fur and blankets, with hands and feet well covered and sitting or lying in the open air in the sunshine if possible; protected from the wind, if need be, by a small canvas screen. If there is rain or snow, a glass-covered veranda will supply the place of the solarium of the sanatorium; or a canvas cover to the veranda, leaving an opening for free access of air, will answer very well. At night the windows of the bedroom are kept wide open, winter and summer. The excessive cold of the winter night may be tempered by a grate fire in the open hearth, but fresh air must enter freely from without."

The temperature should be a guide to the amount of exercise, and none whatever permitted whenever there is any fever.

The patient should also be encouraged by his physician and friends. The usual medicinal remedies are referred to, and some cases cited showing the beneficial effects of the outdoor life.

Richards.

Tuberculosis in Prisons and Reformatories.

S. A. KNOPE, NEW YORK. (*Medical Record*, Mar. 2, 1901.) The tuberculous person must be separated from the rest of the prisoners in the workshop as well as in his cell. Unless this is done, the disease is likely to spread more rapidly under the circumstances of prison life than elsewhere. It is important that tuberculosis among criminals should be combatted with great vigorousness, since the majority of criminals do not remain in prison, and are liable later to be foci of infection to the public at large.

Richards.

Cicatricial Stenoses of the Oesophagus in Childhood, Following Potash Poisoning.

TORDAY. (*Ungarische Medi. Presse*, Dec. 30, 1900, Jan. 15, 1901.) The writer calls attention to the comparatively large number of cases of this sort occurring in Budapest,

and also to their mild nature. In foreign literature, on the other hand, this seems to be a rare occurrence, but where it does occur it is of a much more serious nature, so that operative interference is usually necessary to save the life of the child. The explanation for this is, first, that in foreign places strict official regulations exist, and secondly that the lye is usually sold in a 15 per cent. solution, which affects deeply the whole tissue of the oesophagus. In Hungary, on the other hand, crystalized potash is used, which passes rapidly over the oesophagus, cauterizing only its mucous membrane. In such cases, dilatation with Phillip's bougies, carried on from one to two years, may give complete cure of the stenosis. *Goodale.*

Disturbances of Taste and Odor in Tabes.

JULIAN. (*Bulletin de Laryng. Otol., et Rhinol.*, March 30, 1901.) The study of disturbances in taste and smelling has come late in this affection, long after numerous labors have had for an object the modifications of the eye and of sight. (1) The author reviewing the disturbances in taste, states that total gustatory anesthesia of the lingual mucosa is rare; it is simply very marked in a large number of cases. Perversions of taste, on the contrary, are very frequent, always being disagreeable sensations; decayed fish, bitter, and acid. The general sensibility of the mucosa is sometimes abolished.

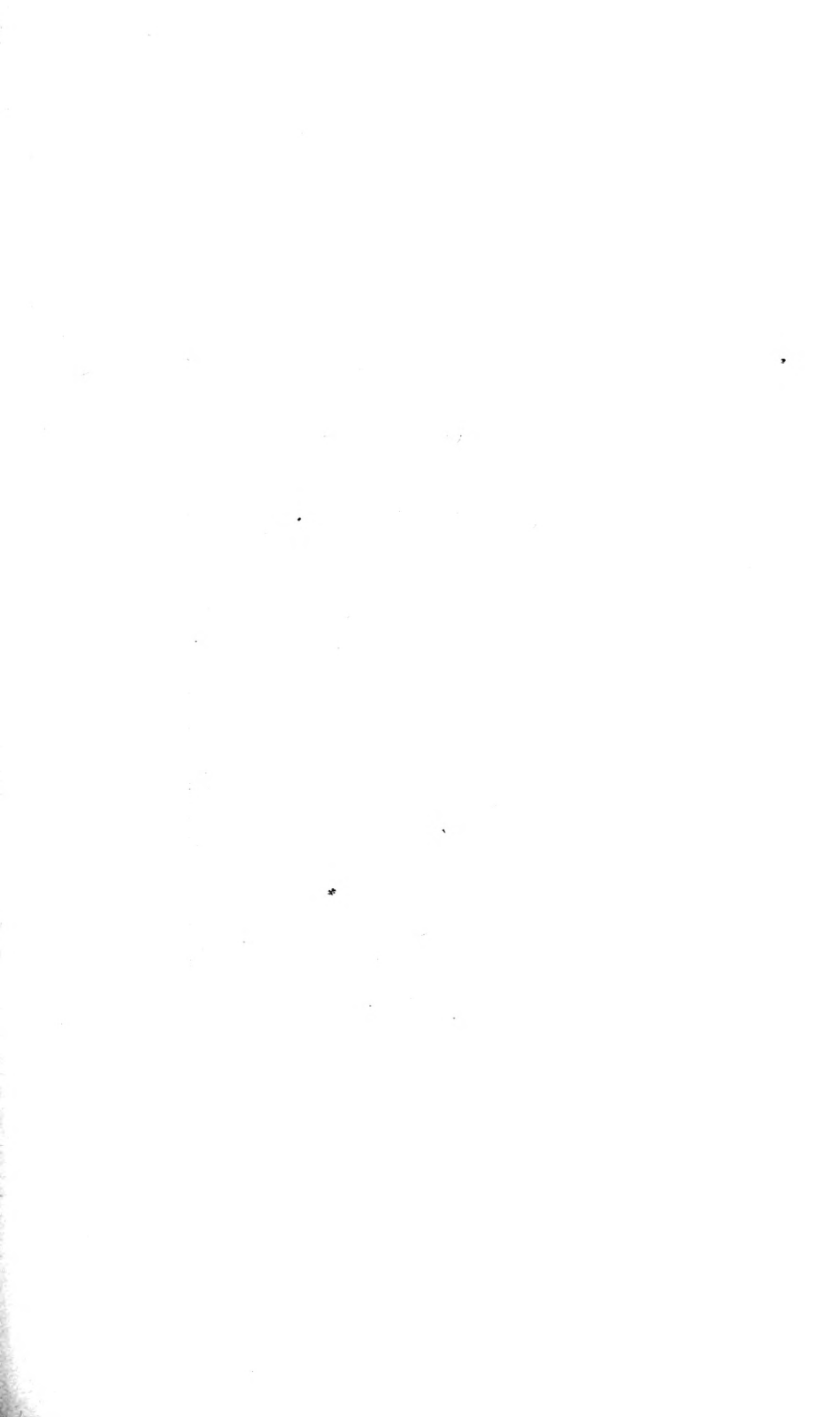
(2) Total absence of odor or anosmia existed 2 times in 40 tabetics. Hyposomia is much more frequent. Perversion of this sense is rarer than perversions of taste. The patient has also, without any reason, odors of fecal matter and rotten eggs.

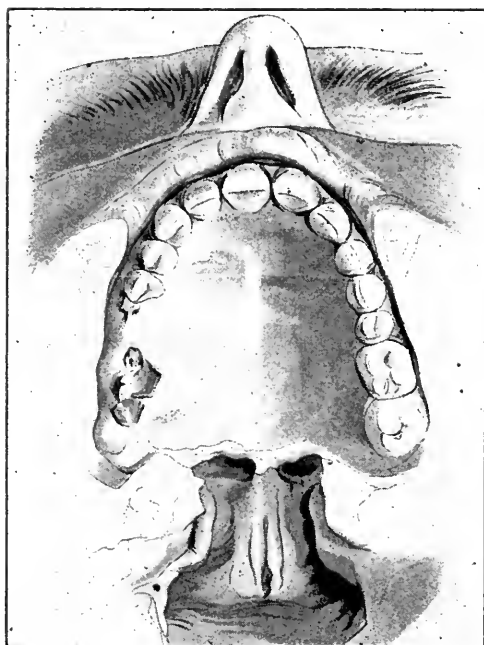
The general sensibility of the membrane may be abolished but there is no parallel between the phenomena of anesthesia and anosmia.

The evolution of nasal perversion can present itself in the form of true crises, the nasal crisis of Kliffel with aura in the sphere of the trigeminal, particularly the cheek, nasal contraction, repeated sneezing, etc.

These troubles of the general and special senses involving the pharynx and the lingual mucosa sometimes appear at the beginning of the pre-ataxic period preceding by many months the other symptoms, and then showing themselves in a fleeting manner. But usually they arise during the ataxic period. In a parallel between tabes and general paresis, Julian shows that in this last affection the sense of smell undergoes a similar diminution.

In general paresis we have a propagation of meningeal lesions to the olfactory nerve and not a systemic lesion of the nervous system as in tabes. Tabes is a lesion of the peripheral neurons; general paresis affects only the central.





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XIII.

CHRONIC NASOPHARYNGEAL BURSTITIS. (THORN-
WALDT'S DISEASE.)*

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ATLANTA.

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A bursa is defined in Foster's Encyclopedic Dictionary to be "a pouch, especially a synovial sac." Bursae, as is well known, exist in various portions of the body, especially under the tendons of muscles around the various joints. The presence of these can sometimes be traced and their etiology determined. There are other bursae, however, which are congenital, although some of these can occasionally be traced to an arrested development. Among these latter is the *bursa pharyngea* which occurs in the vault of the pharynx exactly in the median line. Adenoid tissue can be found in the nasopharyngeal space of nearly every individual, varying of course both in the

*Read before the American Laryngological, Rhinological and Otological Society in New York, May 23, 24, 25, 1901.

amount and the location. In children we believe that adenoid tissue is universally present, and this statement is made by one who practices in a southern climate. I am firmly convinced that the climate does not produce adenoids, but that it influences its growth and morbid state must be apparent to all. My experience shows that these growths occur in the black as well as in the white race notwithstanding that some southern rhinologists affirm that they never occur among the negro. We believe that it is just as natural for adenoids to be present in children as faucial tonsils, and like the latter there are great variations in size. It is not necessary to remove all faucial tonsils nor is it necessary to operate on every case of adenoids, and yet we think it is a good deal better to scrape too often the nasopharynx in children than not to scrape often enough. Harm is never done by the quick use of a Gottstein's curette, but great harm frequently follows its non-use.

As individuals grow older this collection of adenoid tissue in the vault gradually becomes smaller, depending in a great measure upon the presence of that innate tendency toward a catarrhal condition.

The larger the amount of adenoid tissue present in childhood, the slower is its disappearance, which of course never disappears entirely, but is merely transformed. If the patient has been afflicted with a large amount of adenoid tissue in childhood and this was not removed surgically at that period, experience teaches me that such will have trouble in the nasopharynx nearly all of his or her life. This same gelatinous polypoid tissue in childhood will become firmer and more fibrous as the individual grows older, and instead of its being globular or cushion-like, there will be formed bands of fibrous tissue running in the long axis of the pharynx. Between these bands secretion will lodge which will be exceedingly difficult of removal.

Crypts, which normally exist in adenoid tissue, counterparts of the crypts in the faucial tonsils, exist even after all the adenoids have seemingly disappeared and such always affords a nidus for constant irritation and for the production of acute follicular naso-pharyngitis. I have rarely failed to find the remnants of some adenoid tissue

in every patient who complained of nasopharyngeal catarrh. Rhinologists owe much to Luschka, who was the first to describe so minutely the anatomy of the nasopharynx. Anatomists generally agree that there are two kinds of glands in that region: (1) The conglomerate, occurring especially round the mouths of the eustachian tube and on the posterior surface of the soft palate, and (2) the follicular glands which are more especially bunched together just at the center of the vault and commonly known as Luschka's tonsil. This third tonsil varies considerably in size and formation, being sometimes round or oval and then again linear with distinct crevices between the bands. "At the lower portion of the pharyngeal tonsil, in the median line, a small opening is sometimes present which leads into a sac about three-fourths of an inch long and one-fourth of an inch wide, known as the pharyngeal bursa, the name being given to it by Luschka from a term already used by Meyer in description of pharynges of certain mammalia. The anterior wall of the bursal sac is covered with glandular tissue, while the posterior wall is joined by a ligament to the basilar process of the occipital bone. Some observers deny the existence of this sac as a distinct anatomic structure, holding that this bursa is simply a median fissure of a normal pharyngeal tonsil, the fissure being the result of adhesions to the superficial layers of the glandular tissue" (Burnett's System.). These fissures in Luschka's tonsil vary considerably in different individuals and their presence to any large extent is due in my opinion to its having been a neglected case of adenoids in childhood.

Whether or no the pharyngeal bursa exists, is still a mooted question, and after the examination of the nasopharyngeal space in several cadavers, I was unable to discover a distinct pouch. This, however, does not invalidate the fact of its existence. In many of those cases where there were decided objective symptoms of nasopharyngeal catarrh, I have been able to find almost universally the presence of this opening in the vault entirely different in appearance from the slit-like processes so frequently found in Luschka's tonsil.

In 1885, Thornwaldt, of Danzig, published an extensive

article in which he describes still more minutely than Luschka had done in 1868, the pharyngeal bursa. The main object of his paper was to show that the large majority of nasopharyngeal catarrhs were due to the presence and diseased condition of this bursa pharyngea. Since that time such a pathologic condition has been spoken of as Thornwaldt's disease.

There is a great diversity of opinion among anatomic investigators as to whether such a bursa exists. In 1878, Ganghofer after much anatomic investigation, published an extended article in which he denied the existence of the bursa pharyngea in the form described by Luschka, but described it himself "as a simple, more or less marked depression of the mucous membrane, having no great depth, and not connected with the basilar process, as claimed by Luschka, by means of a strip of cellular tissue."

In 1887, Schwabach, of Berlin, published his investigations on this subject, these having been made on cadavers to determine the true character of the pharyngeal bursa. He examined 100 adult heads, twenty-eight children's and two fetal heads. From his examination he found the same condition as described previously by Ganghofer and that was "a series of deep, irregular and shallow clefts, forming ridges of various heights and breadths, which gradually disappear as age advances." This depression is well shown in the accompanying plate. In ten of the twenty-three preparations examined, Schwabach found more or less defined evidences of the original clefts in ten, and in these the middle cleft was the one partially or completely retained, while a few showed a number of openings of varying size." He concludes therefore "that the bursa of Thornwaldt is but the remnant of the middle cleft, the 'purse' or blind pouch being the posterior end, formed by the partial agglutination of the margin, and that it is but an intergral portion of the pharyngeal tonsil, taking part in the diseases to which the latter is subject, but not possessing a pathological character of its own."

Very pertinent to these latter statements are those of Trautmann, "that various authors relying solely upon rhinoscopic examinations, had arrived at erroneous conclusions when studying the hyperplasia of adenoid vegetations, and

these differed completely from those arrived at when the studies were conducted upon the cadaver."

From this we see that there is as yet much diversity of opinion as to the part played by the bursa in the production of post-nasal catarrh. With Schwabach are associated Wendt, Ganghofer, Trautmann and others, while equally as close clinical observers such as Thornwaldt, Luc, Schmiegelow, Massuci and Gradle have found that their investigations warrant them in attaching much importance to the presence of this bursa pharyngea. In my own mind I am firmly convinced that certain cases of nasopharyngeal catarrh are dependent upon some pathologic condition of this bursa for they all surround themselves with unique objective symptoms, distinctively characteristic.

Within the last three years I have had two cases whose clinical pictures were almost identical in character and which showed a condition of the nasopharynx peculiar to themselves. These will be briefly narrated:

Mr. L., lawyer, age 27, consulted me on account of an harassing scabby accumulation in his nasopharynx. He gave the following history: Had never had a spell of sickness in his life, nor was he susceptible to colds. Health almost perfect except for this post-nasal accumulation. Was of a nervous temperament. Had no discharge from the nasal cavities, but behind these there was a constant burning sensation. About once every second day, in trying to clear the post-nasal space, he would cough out a scab the size of a ten cent piece, dry on one side and moist on the other where it had been attached. It always came from the same spot, always had the same formation, and he was always conscious of its presence. The patient had an excellent throat to examine, having such control over his soft palate that I could use simultaneously both the mirror and cotton probe. This gave me an excellent opportunity to apply the treatment. I found a post-nasal scab situated at the vault of the nasopharynx, just in the center and little below the nasal septum. No secretion could be seen anywhere else. This scab was removed with a piece of cotton on the end of a curved applicator, and from its point of removal was seen a depression into which the end of my little finger would probably fit, at the center of

which was found a minute opening. This opening was entirely different from the slits found when there are remnants of adenoid tissue left, for in this case the post-nasal space seemed everywhere free from glandular tissue. Nor was there any accumulation in Rosenmueller's fossa. The nasal cavities appeared perfectly normal. Here was a case to my mind different from the ordinary post-nasal catarrh, being entirely free from the objective appearances usually found in that condition. My own diagnosis was that of chronic inflammation of the pharyngeal bursa. The prognosis in these cases as to absolute cure is exceedingly unfavorable, and I was fully aware that I had a hard case to deal with.

The treatment consisted in daily cleansing of the post-nasal space with equal parts of peroxide of hydrogen and water. This the patient accomplished himself with a post-nasal atomizer. This was easily done because of the great tolerance to instrumental manipulation in this region. I myself used all the well-known remedies, such as varying solutions of nitrate of silver, iodine and iodide of potash solutions, ichthyol, chromic acid, and finally the electrocautery. Curetting was not resorted to, because there was no indication for this procedure. The patient improved some, but his condition was never cured, and he finally passed from under observation.

Case II. This was one quite similar to the first.

Mrs. L., age 33, consulted me for symptoms which annoyed her similar to the one above. This lady was quite a vocalist, having a beautiful contralto voice. She complained of an intense burning pain behind the nose and the presence of secretions in the same region which usually came away after thorough douching in the morning. This condition she said had been present for two years, but she was able to dislodge the secretions after large amounts of warm salt water had been passed through the nose. The secretion always came away in the form of a distinct scab. Her general health was excellent, which was well exemplified in her physique. On examination the nasal cavities appeared normal, as also the oropharynx and larynx. This patient also had excellent control of her throat for examination and instrumental manipulation. The only pathologic condition seen was a depression in the

median line of the vault just back of the septum, in which was seen some dirty yellowish secretion. This was removed with a cotton applicator, revealing a raw, bleeding surface. An opening, similar to the one seen in the first case, was found at the lower end of this depression into which the probe could be passed. This patient was treated with various remedies with varying success. She is still under treatment.

Since this time I have had three other cases.

This paper is more for the purpose of eliciting a discussion than the advancing of any new ideas, and I trust that the fellows of this society will give us the benefit of their own clinical experience with such cases. These two cases which have been reported, present an entirely new type of post-nasal trouble, different from the ordinary post-nasal catarrh where adenoids are present or where there is a distinct nasal lesion.

From objective symptoms present, these two cases offer all the features of that pathologic condition described by Tornwaldt, and every clinical feature of the case points to a diseased state of the pharyngeal bursa. Those who deny the existence of this pathologic condition as a distinct entity, I am sure base their opinions on an anatomic investigation, and not on clinical facts. Such cases when once seen, are readily recognized because of the great similarity in both their objective and subjective symptoms. The presence of this central depression, the opening at the lower portion from which in one case mucoid matter exuded, the irritated condition of this socket, the presence of a firmly imbedded scab, these are symptoms distinctly characteristic of this peculiar condition.

Whether the so-called bursa pharyngea is a distinct bursa or blind pouch in the mucous membrane, it is certainly the cause of a peculiar form of naso-pharyngeal catarrh. My own idea is that this bursa or pouch is but rarely present normally, but when it is, especially if there be any naso-pharyngeal irritation present, and also if there be remnants of old adenoid tissue, it is apt to take on a catarrhal condition and produce those symptoms as were described in the two cases above.

I do not agree entirely with Delavan, who said in a paper read in 1894, that "the so-called Thornwaldt's disease ap-

pears to be nothing more than neglected adenoid hypertrophy."

There must be something more present besides neglected adenoid hypertrophy to produce this pathologic condition, for too many neglected cases have been seen where none of these symptoms were present. Nor do I agree with Hajek, of Vienna, who believes "that Thornwaldt's theory as regards the recessus medius should be set aside, since the identical trouble described by him as limited to that crypt, could also be observed in other recesses of the nasopharynx." This is no theory, but a clinical fact, as can be demonstrated on any typical case. Nor can you find similar conditions in other recesses of the nasopharynx as the author holds, for this median recess has a pathologic formation *sui generis*.

We have all seen these recesses in old cases of neglected adenoids, but the appearance of such even when there is much catarrhal trouble, is entirely different from the present condition under discussion.

In looking up the literature on the subject, there was found a pretty evenly divided opinion among competent observers as to the non-existence of this peculiar pathologic condition, and yet I think this is largely due to the fact that the condition itself is not frequent and probably many observers did not recognize it as a distinct entity.

I cannot agree with Thornwaldt in attributing every case of post-nasal catarrh to this condition.

It was the non-success of the treatment in the two cases reported which caused me to study more minutely their clinical features. To treat the post-nasal space successfully you must be able to inspect its surface thoroughly and be able to make your applications just to the points desired. This is not always easy unless it is in a patient who has perfect control of his soft palate. I think that the method in vogue of mopping the nasopharynx without seeing the point for which the application is intended, is both painful to the patient and unscientific in its purpose. If the patient has not enough control of the muscles of the throat to allow the applicator and post-nasal mirror to be used at the same time, then the palate retractor should be brought into requisition and the parts treated properly.

I could never agree with Ziem, of Danzig, who advocates

“the routine employment of palpation of the nasopharynx as superior in every way to posterior rhinoscopy.” I believe that the reason non-success so frequently results in the treatment of nasopharyngeal troubles, is because this region is not examined thoroughly enough.

The best treatment which I found in addition to the thorough cleaning which the patient accomplished at home, was an application of a solution of nitrate of silver, 60 grs. to the ounce, directly to the sulcus, followed by thorough spraying of the nasopharynx with *hot melted* vaselin and orthoform. The curette and electro-cautery point were tried. Thornwaldt recommends the destruction of the bursa by means of these latter methods. My own success was not at all gratifying. Schmiegelow of Copenhagen, has reported three cases of obstinate post-nasal catarrh cured by cauterizing the bursa. Such success however has not been obtained by many other observers and in fact a majority report a rather small proportion of cures.

The prognosis as to ultimate cure in these distinctly characteristic cases is certainly not brilliant, and the laryngologist will be taxed to his utmost to place the patient in even a comfortable condition.

Grand Opera House Bldg.

XIV.

TRAUMATIC AFFECTIONS OF THE UVULA.

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From its peculiar position in relation to the oropharynx, the uvula would appear to be extremely susceptible to severe traumatic influences, as it is constantly subjected to minor traumatism in deglutition and excessive vocal efforts, yet reported cases of damage to this portion of the pendulous palate are comparatively rare, the text books containing little or no reference to traumatic affections. The anatomic structure of the uvula and its mobile characteristics render it to a great degree exempt from traumatism otherwise influencing the tissues in its immediate proximity. The mucous membrane covering it, especially at the tip, is of firmer consistency than that of the surrounding tissues, and is also less dense in structure. As an additional protection against damage from the lodgment or impact of foreign bodies, is the absence of glandular stomata or crypts as occur on the pharyngeal walls and tonsils.

Pathologic alterations of the contour and structure of the uvula, as the result of traumatic influences, may best be classified from an etiologic standpoint and may be divided into five classes. The first is extensive injury the result of forcible contact with resisting foreign bodies, the soft tissues of the uvula being caught between the foreign body and the pharyngeal wall. The second class embraces those cases in which the mucous membrane is pierced by a minute body such as bristle or stiff hair. The third class embraces the more frequent cases in which as the result of swallowing caustic materials and also in the application of caustics to adjoining regions, the uvular tissues become subjected to chemical traumatism. The

fourth class is seen in accidental cases in which this portion of the palate is subjected to traumatism as the result of operative procedures directed to the tonsils, larynx or naso-pharynx, the uvula accidentally becoming engaged in the handle of the forceps or whatever instrument of similar nature is being used. The fifth class results from indirect traumatic influences, being by far the most important from the standpoint of the individual as it occurs in singers as the result of excessive or ill advised efforts at vocal exercise.

As illustrative of the amount of damage that may be done to the uvula as the result of forcible contact with a hard, resisting foreign body, the following case is presented: C. J., colored, male, age thirty years. Was seen February 23, 1899, when he presented the following history. While under the influence of alcohol and smoking a corn cob pipe, he ran against a stone wall on the evening previous to which he was seen. The stem of the pipe was violently forced into his throat and severe pain and bleeding ensued, which lasted the entire night. The pain was intense and was referred to the base of the tongue and pharynx and prevented the taking of food either solid or liquid; even the mere act of swallowing being impossible on account of the increase of pain produced at such times. The pipe had been held on the left side of the mouth and examination showed a deep laceration on the same side of the tongue, and after inflicting this damage the stem of the pipe had evidently passed backward and jammed the uvula against the posterior pharyngeal wall. The uvula was perforated directly in the median line two millimeters below its junction with the soft palate, the perforation being partial, inasmuch as it did not go through the mucous membrane of the posterior aspect, and corresponded in shape and size to the stem of the pipe. Inflammation and edema were severe and prevented to a great extent the opening of the mouth, but hemorrhage had spontaneously ceased. The parts were painted with ichthyol and an astringent mouth wash was given, with prompt relief in a few hours and the case made an uninterrupted recovery in a few days.

It is of interest to note in cases of severe traumatism of the uvula, that edema is not as well marked as in appar-

ently more trifling injuries, scarification rarely being necessary, as free bleeding has already taken place, and the amount of swelling is limited. Another point of interest is the rapid improvement without the least suggestion of septic infection, following the use of antiseptic and astringent applications. It is also remarkable in these cases of severe local injury, with what rapidity the healing of the lacerated or punctured wound takes place; this case, being typical of its class, well shows this marked recuperative power, as in forty-eight hours after the patient was first seen all the symptoms had disappeared, and but slight congestion remained around the wound.

Of more frequent occurrence than severe lacerated or punctured wounds of the uvula, are the minute lacerations of mucous membrane and oftentimes of the deeper strictures, as the result of small foreign bodies such as a bristle from a tooth brush, etc. Belonging to this class is a case reported by Fisher (1) in which the uvula was pierced by a bristle: severe hemorrhagic infiltration occurred, the uvula being greatly swollen and dark purple in color from the large amount of blood effused into the tissues. Small foreign bodies producing traumatic injuries of the uvula may induce pathologic alterations seemingly out of all proportion to their size. When the foreign material such as a minute fish bone merely enters the surface epithelium and does not penetrate into the deeper tissues, a slight grade of inflammation results, dependent upon the length of time the foreign body remains in situ, and then rapidly disappears without further treatment as soon as the offending particle is removed. The subjective symptoms are, however, most annoying, as the patient complains of the presence of a foreign body even for a considerable time after all traces of it have been removed and the dysphagia, peculiarly, is very rarely referred to the uvula directly, but most frequently to the tonsillar or epiglottic regions. The characteristic features predominating when a minute sharp pointed body enters deeply into the uvular structures, are edema and extravasation of blood. The uvula becomes enormously increased in size and as a rule hemorrhagic extravasation of the uvular tissues is nearly always of traumatic origin.

The general symptoms of the varied traumatic inflamma-

tions of uvula, are in the majority of cases not well marked except when traumatism is severe, when the inflammatory reaction involves the adjacent parts by continuity of structure and pharyngitis results, attended with a moderate degree of temperature such as occurs in the regular course of acute non-specific inflammation of this particular region. Within a few minutes or hours after the infliction of the injury and dependent upon its extent, the patient complains of a sense of pharyngeal discomfort, which may, in severe cases, as the one reported here, amount to intense pain. The pain is constant, but becomes markedly exaggerated during deglutition and food is refused for a limited time until the acute symptoms subside. Dependent upon the amount of edema and inflammatory reaction are the changes in the voice. The functions of the uvula are for the time abolished, the resonating capacity of the parts is impaired, and articulation becomes thick from the swelling of the uvula and from the increased amount of mucous collecting in the oro-pharynx, due to indirect stimulation of the secretory glands. On account of the increased amount of saliva and mucous, there is a constant desire to swallow, this also being enhanced by the sensation of the presence of a foreign body, which seems a constant local symptom in practically all cases. This foreign body sensation in a few instances may be due to the presence of a minute particle of adventitious material partially embedded in the mucous membrane and, from the constant motion and enlargement of this part, the tissues in its immediate locality are irritated by the foreign matter abrading their surface with every act of swallowing, thus keeping up the inflammation. In the majority of cases, however, this is but a nervous element, but in all, careful search under good illumination should be made, and any adventitious material should immediately be removed.

Dyspnea only occurs when the tissues are enormously increased in all their dimensions by the effusion of blood or serum into the structure of the uvula; it may be extreme requiring immediate operative procedure, as in a case reported later in the course of the paper, and is also present in the class of cases where the traumatic influences are indirect, as in excessive vocal strain. The non-appearance of dyspnea when the uvula is subjected to direct

and severe traumatism is readily explained by the laceration of the tissue as a result of the foreign body, allowing the fluids to escape and in this manner excessive infiltration by liquids is prevented. Cough is not as commonly present as the other symptoms mentioned and is rarely complained of when the parts are edematous, as in this condition the increase in the size of the uvula is one of bulk, that is, in the lateral direction, while the cough factor depends upon the elongation of the tissues and the contact of its tip with the epiglottis. When cough is present, however, it is of an irritating, tickling variety and promptly disappears on the application of an astringent, so as to draw the elongated uvula away from the larynx or base of the tongue.

Acute uvulitis characterized by the presence of a considerable amount of local edema, may result from the inadvertent swallowing of boiling water, acids, ammonia or any chemical irritant; the uvula participating in the general inflammation of the oro-pharynx. Cases in which the traumatic effects of irritant chemicals are alone limited to the uvula, are much more frequently observed and occur as the result of ineffectual or unskillful attempts to cauterize the adjoining tissues for therapeutic purposes. Under these circumstances but a limited portion of the organ is involved, although the resultant edema and inflammatory reaction is far in excess of the amount of damage inflicted. J. Solis Cohen² reports a case where caustic applications produced an intense edematous condition of the uvula, and numerous other cases similar in character have been recorded in the literature. The loose structure of the upper two-thirds of the uvula, like that of certain portions of the larynx, renders it susceptible in a marked degree to the action of caustic and it is surprising in what a short period of time after a minute amount of caustic material has been inadvertently applied, the edema develops.

Injuries, the result of carelessness or accident during operations on the pharynx or larynx, are of more or less frequent occurrence, especially when the electro-cautery or tonsil snare is used without proper precautions as regards the protection of the surrounding tissues. The resultant burn differs but little from that due to the action of chem-

ical caustics when the traumatism is the result of the careless application of the electro-cautery, while minor wounds due to catching the uvula in the joints of instruments are usually of little moment, except as they, to a moderate degree, augment the inflammatory reaction and for a short time cause the patient added discomfort. Objectively, when the uvula is injured by being caught in instruments during operations in this locality, we find a small laceration or bruise of the mucous membrane the most common feature, while traumatic ulcers the result of caustics are apt to develop in a few days after the injury has been inflicted, but readily heal under appropriate treatment. The liability to local and circumscribed sepsis after the infliction of this class of injuries upon the uvula, seems to occur more frequently than as the result of other forms of traumatism, as the injury when due to instruments is usually of a contused and lacerated variety and the resultant ulcer develops as the result of septic infection through the buccal cavity. Especially is this noticeable should the patient have decayed teeth and the parts are not thoroughly cleansed, as is frequently the case, before any operative procedures are instituted.

The first four varieties of traumatism to which the uvula may be subjected are all the result of direct violence to this portion of the oro-pharynx, while the fifth form results indirectly from excessive strain of the parts and the symptoms are out of all proportion to the apparent amount of injury inflicted, the ill regulated column of respired air and the irregular muscular action combining to produce this variety of indirect traumatism. The following case illustrates in a forcible manner this form of traumatism and is reported by Le Jeune³. He was hastily summoned to see a female singer, who was supposedly choking to death. The intense dyspnea came on after she had been singing for a time and immediately followed extreme and prolonged efforts to reach a note beyond her compass. The subjective symptoms were dyspnea, with the sensation of a foreign body in the throat. The uvula alone was affected and was of a dark purple hue and the size of an olive. Incision was immediately made, which gave exit to blood, which had extravasated

into the tissues of the uvula and immediate relief was given the patient.

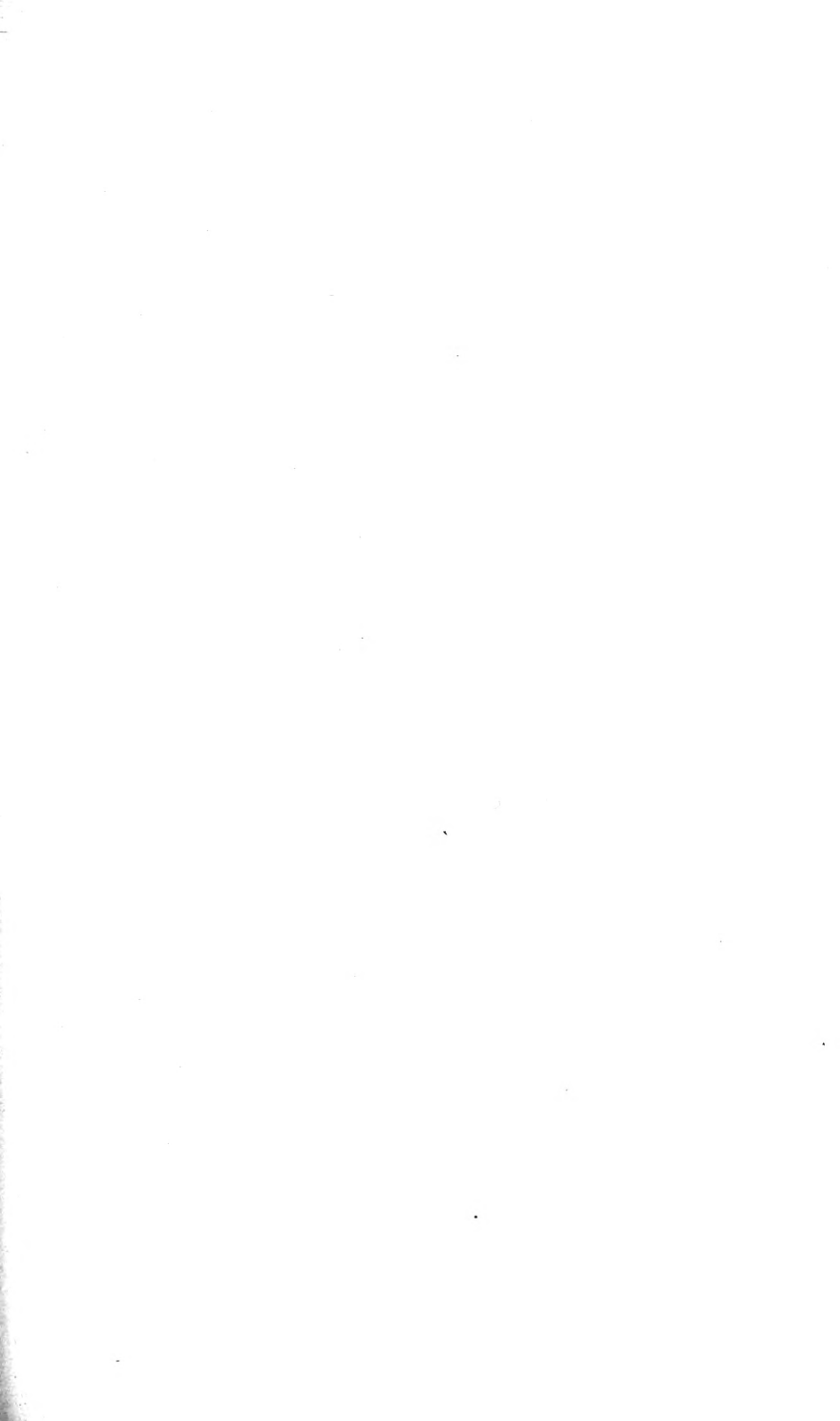
In a similar manner small sub-mucous ecchymoses are produced by excessive and violent efforts to clear the throat as in the act of hawking. The effects of this form of traumatism upon the voice, both singing and speaking, is marked: the range is lost, as is also the clearness and strength, and often it becomes tremulous until the uvula regains its normal tone.

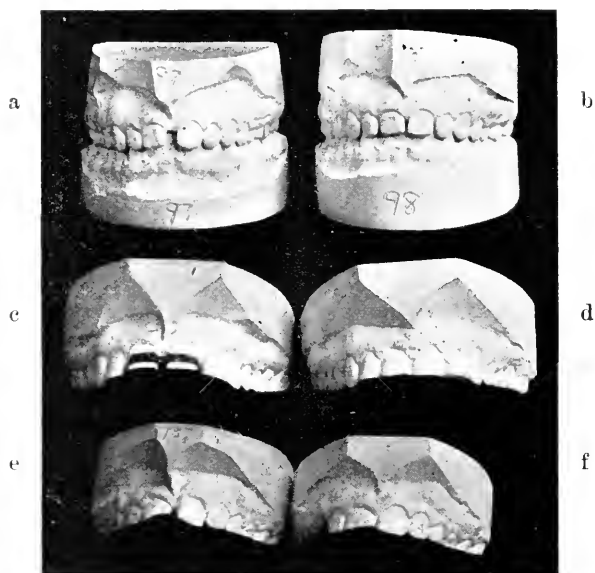
No special forms of treatment are indicated when the uvula suffers as the result of traumatism, but when the tissues are lacerated the local application of ice is most gratifying in conjunction with antiseptic and mild astringent applications. In inflammations, the result of inadvertent applications of caustics or instruments in operative procedures, bland soothing applications are valuable, such as ichthyol in weak solution. When edema is extensive, or the parts much enlarged from hemorrhage into the tissues and dyspnea becomes imminent, multiple incisions promptly relieve all threatening symptoms and the uvula rapidly regains its normal size.

¹Fisher—*Deutsche Medicinische Wochenschrift*, Leipsig, No. 42, 1894.

²J. Solis Cohen—*Diseases of the Throat*.

³LeJeune—*Provincial Medical Journal*, Leicester, England, February 1, 1894.





a and b. Case II before and after treatment.
 c and d. Case III before and after treatment; c with retention bands.
 e and f. Case IV before and after treatment.

XV.

A MEANS OF REDUCING AN OVERGROWTH OF THE INTER-MAXILLARY FRENUM, PERMITTING THE RETENTION OF TWO CENTRAL IN- CISORS IN CLOSE APPPOSITION.

BY HANAU W. LOEB, M. D.

ST. LOUIS.

PROFESSOR OF DISEASES OF THE NOSE AND THROAT IN THE MARION-SIMS-BEAUMONT COLLEGE OF MEDICINE, LARYNGOLOGIST TO THE CITY HOSPITAL, REBEKAH HOSPITAL, EAST ST. LOUIS PROTESTANT HOSPITAL, GRAND AVENUE DISPENSARY, ETC.

The relatively new dental specialty, orthodontia, brings the laryngologist and the dentist into closer relation, for while the correction of malocclusion depends largely upon the mechanical treatment of the teeth, among the most common causes are the conditions which belong to the realm of laryngology. Not only this, but malocclusions may be prevented, and are being prevented, by proper attention to the obstructive conditions of the nose and throat, so common in childhood.

For instance in the mouth-breathing child, the two posterior ends of the upper alveolar arch have a tendency to approximate and thereby encourage the development of the V-shaped palate arch, and, at the same time, the teeth lose their proper relation to one another, to their fellows upon the lower alveolar arch, and to the alveolus itself, wherefore the various deformities result.

While investigating and studying the effects of mouth-breathing upon malocclusion of the teeth, with Dr. C. D. Lukens of St. Louis, my attention was called to a very common condition in which the two central incisors are permanently separated. It is a comparatively easy matter to bring these two teeth together and hold them in close apposition by properly fitting retaining bands, but they generally separate with startling rapidity when the retention apparatus is removed. Investigation showed us

that there is a small ridge of tissue which passes from the labial frenum downward between the teeth, extending to the palatal surface. In studying this unusual distribution of the fibres apparently from the frenum, we have found that in the main this depends upon the implantation of the frenum upon the gingival surface. When the attachment is high up, the fibres are lost before they reach the under surface of the alveolus, while when it is lower down, the fibres in a vast majority of cases continue between the two central incisors and are spread out in a fan-shaped manner upon the palate. The points are beautifully seen in the photographs which are here presented.

These observations have been made upon the living subject, hence we do not maintain that dissection will entirely confirm them, though the appearance of the living subject suggests their verification. Just what degree of low attachment conduces to the extension of the fibres to the palate, we are at present unable to state with absolute exactness, but in our cases, except one, whenever the frenum was attached to the gingival surface, less than three millimeters from the lower edge of the alveolus, the separation of the two teeth was observed. In the single exception noted, the attachment almost reached the inferior border of the alveolus and yet no appreciable separation of the two central incisors was present.

It is, of course, possible that in the embryologic development of the intermaxillary bone, the low attachment of the frenum is the effect and not the cause of the separation. As we have had no facilities for determining and investigating this feature of the question, we leave it at present entirely open.

Suffice it to say that separation of the two central incisors is very common; it causes no bad symptoms, except from the standpoint of esthetics. Young women object to it because of its unsightliness.

Whatever the cause of the separation of the two central incisors, an examination reveals the presence of the mass of tissue which lies between the two teeth, and the continuance of the separation depends upon its persistence.

To overcome this, I have taken advantage of the well-known cicatrizing effect of the galvano-cautery, whereby the tissue is tremendously reduced in size and by means

of which, in all the cases so far treated, permanent approximation has resulted.

The operation consists in plunging a galvano-cautery knife in the median line, beginning at the upper and anterior margin of the mass of tissue just described, and carrying it well under and behind the alveolus, even to the fan-shaped prolongation on the palate. One application will sometimes be sufficient, though three or four may often be necessary. The operation may be performed before the retention bands have been applied or during their application and use.

Care must be taken not to insert the cautery point too close to the teeth.

The reaction from the operation is very slight—in fact less than from cauterization of the nose.

A few illustrative cases may bring out the special points in the treatment of these cases.

Case 1. M. M., young woman, aet. 18. Separation fully one millimeter, frenum attached about three millimeters from lower alveolar border. On Dec. 22, 1898, I cauterized the mass, carrying the cautery point under the alveolus and upward toward the palate. No reaction or pain followed this treatment; retaining bands were applied and the teeth were soon brought in close approximation, which continued, according to my last report from the case.

Case 2. N. W., girl aet. 17, referred to me by Dr. Lukens. Separation three millimeters, implantation of frenum labii superioris two and a half millimeters from the alveolar edge; beautiful fan-shaped prolongation of fibres upon the hard palate fully twenty millimeters in width. Repeated efforts to hold the central incisors in apposition had utterly failed, the teeth springing back rapidly after removal of the retention apparatus. Between March 15th, and May 3rd, 1899, three cauterizations were made, the first before and the others after the retention apparatus was applied. No reaction followed except slight pain in one instance. The case progressed to complete correction of the deformity, as shown by the photograph herewith presented.

Case 3. This patient, a woman, aet. 28, as shown in

the model had exhibited since childhood marked protrusion of the upper teeth over the lower teeth, associated with, and in all probability incident to mouth breathing. While no adenoid growths were observable upon examination, the appearance of the patient's face and the history were strong presumptive evidence. Two cauterizations were made on January 24th and January 28th without any reaction. Case progressed without incident and approximation of teeth is now perfect, although the central incisors were separated fully two and one-half millimeters.

Case 4. W. F., boy, 9; separation one and a half millimeters; implantation of frenum almost at the lower edge of alveolus. Two cauterizations, March 22nd and April 9th, 1900, were sufficient to permit the teeth to be held together after use of the retention apparatus for six weeks.

My object in bringing this work to the attention of this society is to add one more link to the chain of association of mouth to pharynx and nose, and, perhaps to suggest a further plan whereby we may properly be of assistance to dentists, especially those who practice orthodontia.

XVI.

INFLAMMATION OF THE MASTOID PROCESS.*

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While it is usual to speak of diseases of the mastoid process separately from those of the tympanic cavity, it is probable that the mastoid antrum and cells participate, to a greater or lesser degree, in all inflammatory conditions of the middle ear. Primary inflammation of the mastoid is exceedingly rare when traumatism or the manifestations of tubercular or specific diatheses are eliminated. Localized or diffused inflammation in the external auditory canal may extend to the mastoid cells, yet, generally speaking, all diseased conditions of the mastoid process have their origin in the middle ear and from that point pass to the mastoid antrum and cells.

A brief review of the anatomy of the temporal bone, and relations to important adjacent structures, is given in order to better elucidate some points desired to bring out. During the first years of life union between various parts of the temporal bone are vascular and not firmly united, which permits inflammatory products to pass through, giving rise to a collection of pus under the periosteum behind the auricle. This tumefaction containing pus, and having no connection with the mastoid cells, is frequently seen in strumous children.

The greater part of the outer wall of the tympanic cavity is formed by the drum head. The upper portion of the tympanum or middle ear is the attic, and connecting directly with it by means of the aditus-ad-antrum is the mastoid antrum, which in turn communicates with the mastoid cells. The roof of the middle ear, called the tegmen tympani, consists of a very thin plate of bone upon

*Read before the Academy of Medicine at Los Angeles, January 25th, 1901.

which rests the dura mater of the brain, being a part of the floor of the middle cerebral fossa. Defects in the bone of the tegmen tympani are not of unusual occurrence, permitting inflammatory products in the middle ear to pass directly to the brain.

The floor of the tympanum is of thin bone, beneath and posteriorly lies the jugular fossa, and anteriorly the carotid artery. The facial canal is situated directly behind the attic and antrum. The nerve is in great danger of being injured when curetting the attic, especially so in children, as the wall of the canal is very thin and may be lacking.

Anomalies in the course of the lateral sinus, making it almost impossible to reach the antrum through the mastoid without opening the vein, are not rare. Great variations are found in the density of the bone forming the mastoid process. There may be large air cells lined with mucous membrane freely communicating with the antrum and each other throughout the entire region; the upper part may be composed of air cells, while the lower part of the process may be diploetic tissue; the entire bone diploetic or completely sclerosed and eburnated. The latter condition is probably not natural, the osteosclerosis being a result of long standing inflammatory changes existing in that region. This condition, to a great degree, masks symptoms of disease that may exist in the antrum or adjacent parts and adds danger by forming an impassable barrier to the exit of pent-up inflammatory products through the bone externally, the thin partitions from the brain or sinuses being in that event places of least resistance. Symptoms usually looked for by the older surgeons, of swelling and tenderness over the mastoid, would not appear under these conditions. The external contour of the temporal bone affords us no reliable information regarding its internal formation, whether pneumatic or sclerosed, the existence of an anomalous position of the lateral sinus, or pathologic changes present, such as osteitis, empyema or osteomyelitis.

The following case, operated upon last summer, is a striking example to the extent to which osteosclerosis may take place after long continued inflammation in the middle ear and antrum, and also the extent to which the con-

dition may mask symptoms that justify performing the mastoid operation:

Miss H., age thirty, gave a history of hip joint disease when a child. Bone resected later, resulting in recovery. At ten or twelve years of age had a discharge from left ear, which continued with little or no abatement up to the time of operation in August last. When I first examined the ear three or four months before that time, there was a small opening in Shrapnell's membrane through which exuded a very small quantity of pus. All of my endeavors by simple methods to check the discharge proved futile. The patient felt a constant uneasy sensation in the ear and over the upper mastoid region, but seldom a decided pain. While on a summer vacation in the mountains, she was attacked with a severe pain in the ear. As she had been warned of the danger which might accrue from the chronic ear trouble, she immediately returned to the city to have the radical operation performed. Upon arriving here several days later, she complained of no decided pain in the ear, but a numb uncomfortable feeling. The usual small amount of pus could be wiped away from around the slight opening in the upper part of the drum membrane, but there was no decided bulging of the parts. There was no swelling or redness behind the auricle, nor could pain be elicited by firm pressure over any part of the bone externally. In the absence of more positive indications for opening the mastoid, I should not have done so but from previous history of the case, inability to control the discharge by simpler methods and the wishes of the patient to undergo the operation in hopes of relief from the long existing menace to her life.

Before opening the bone a free incision was made through Shrapnell's membrane, the point of the knife reaching the attic, then incising the tissues to the bone from that part of the tympanic ring externally for one-half an inch. Upon chiseling through the cortex over the antrum, dense eburnated bone was encountered which extended the entire distance to the antrum, which was about ten-sixteenths of an inch from the surface. No vestige of cellular bone or diploetic tissue was present in any part of the opening, but it was so ivory-like as to break or turn the edge of several instruments used in

sinking the canal to the antrum. The antrum was found to be very small and I am not positive that it contained pus, though some inspissated pus and epithelial cells were dislodged from the tympanic cavity by curetting and the free use of a middle ear syringe, the bent tip being introduced through the wound and antrum, the solution passing out through the meatus. The antrum was packed with iodoform gauze and removed in forty-eight hours afterward, then dressed daily without packing the wound in the bone. Recovery was uninterrupted, and she left hospital in two weeks from the time of operation; the wound by that time being healed except a slight granulating surface between the edges of the skin wound, which closed up in a few days. The patient returned, in less than a month from the time of operation, to her home in an adjoining town and resumed her duties as teacher in a public school. There has been no return of the discharge from ear up to the present time and the patient expressed a sense of relief from the annoying sensations about the ear so long suffered from, immediately upon recovering from the anesthesia.

Belonging to the class of chronic mastoiditis as described above, Knapp calls especial attention to not rare conditions in which the patients suffer excruciating pains of a neuralgic character, which radiate from behind the ear over the adjacent side of the head, incapacitating them for prolonged mental labor. The otorrhea may have ceased for months or years. There may be no redness or tenderness upon pressure over the mastoid, nor can a diseased focus be localized by any means at our command, and upon opening the antrum no pus is found, yet, strange to say, the pain is relieved by the operation.

To illustrate: A few years ago the writer did a Schwartz operation upon a woman for acute mastoiditis (left side), who had suffered for several years from double otorrhea. About the time of her recovery from the operation upon her left ear, a few weeks later, the patient complained of severe pain in a circumscribed spot about two inches below the sagittal and one inch in front of the lambdoid suture on the right side of her head, worse at times than at others, frequently excruciating and visibly affecting her health. There was no pain in the ear or symptoms of any

kind to denote an active inflammatory condition of the tympanum or antrum. The bone over the antrum was perforated and found to be sclerosed, there was no pus in the antrum, yet the pain ceased almost immediately after the operation and with it also the otorrhea.

The prognosis in acute tympano-mastoiditis depends upon the presence or absence of infection. Upon this point the writer desires to place particular stress. We may confidently expect a rapid subsidence of all simple acute inflammatory conditions of the mastoid, co-ordinately with that of the middle ear, provided no infection has been carried from without. In exanthematous diseases of children, infection is very prone to occur, micro-organisms passing through the Eustachian tube from the nasopharynx.

It is very probable that the streptococci usually found in the ear discharge of these patients are the primary cause of the otitis media, they having entered through the Eustachian tube before its closure. This stoppage of the tube, which takes place in all high inflammatory conditions of the tympanum, being nature's method of preventing infection of that cavity, is usually successful if not baffled by the over zealous use of the Politzer bag or other forcible means which carry infection from the nasopharynx.

Empyemic involvement of the mastoid characterized by rapid destruction of the bone, is likely to follow acute inflammation of the middle ear when it occurs as a sequela of the exanthematous diseases in children.

A case in point: A child six years of age; patient of Dr. Yost; mastoid involved during a severe attack of scarlatina. Through the courtesy and assistance of the doctor, the soft parts were freely incised from above the ear to the tip of the mastoid process. The entire bone was found to be a necrosed and crumbling mass extending from the antrum to near the tip, and from the posterior meatal wall to the lateral sinus behind. The surprise in this case was not only the rapid and extensive bone destruction, but that there was no intracranial or sinus extension of the disease.

Mastoiditis following chronic suppuration in the middle ear is of the infected variety and the prognosis is always

grave. On account of the anatomic arrangement of the parts, disease, when localized in the attic or upper part of the tympanum, more readily extends to the mastoid than when situated lower down in the middle ear. A fold of mucous membrane extends across the cavity from the short process of the malleus and almost completely divides the attic from the lower part of the tympanum. Reduplications of this membrane, or great swelling of the parts, may completely separate the two portions of the cavity, and, as the attic extends somewhat over the superior wall of the meatus, a very small space is left for the external discharge of inflammatory products which must pass either under the posterior-superior lip of the bony canal or through Shrapnell's membrane. Sagging down or bulging of the structures in this locality is of the greatest diagnostic value in mastoiditis, and one upon which our greatest reliance should be placed in the absence of positive external indications. The next important symptom is local tenderness upon firm pressure over the mastoid region. This sign is usually the most prominent, but may be absent even when serious destructive lesions exist within the bone.

Elevation of the temperature of the body usually accompanies the acute affection; not so, however, when the mastoid has become involved secondarily to chronic middle-ear suppuration. A circumscribed inflammation of the canal sometimes causes an edema behind the ear which may be mistaken for mastoid involvement; and, for reasons given, a tumefaction is often found back of the auricle in children when there is no opening in the cortex of the mastoid.

Treatment: When seen early, antiphlogistic measures such as confinement to bed, a brisk cathartic, local blood letting, and cold applied over the mastoid should be employed. If the upper posterior wall of the canal and Shrapnell's membrane are bulging, a deep incision should be made through the membrane and extended along the superior wall of the canal for at least one-quarter of an inch. This simple operation if resorted to at the proper time, will, in a majority of cases, cut short the attack and obviate the necessity for performing a more serious operation, that of opening the mastoid.

Opiates for the relief of excessive pain may be employed early in the disease, but caution in their use is necessary that they may not so mask the symptoms as to frequent proper recognition of their import. This caution is also necessary in the use of cold, which should not be applied longer than twenty-four or thirty-six hours—forty-eight hours at the furthest.

The Leiter coil applied continuously over the mastoid will, as a rule, control the pain of acute mastoiditis, and, as mentioned by Dr. Dench,* is a valuable diagnostic agent to differentiate neuralgic pains over the side of the head from those emanating from deep inflammatory processes. The former is made worse by the cold while the latter is relieved. Frequently after rest in bed, the use of cold applications, etc., the pain is relieved and with it apparently all other untoward symptoms, yet, when the patient resumes his daily vocation they all return with renewed vigor. If there is not an immediate improvement upon incising the upper posterior wall of the canal, or a decided change for the better after forty-eight hours use of the simpler methods, the radical operation should be immediately performed.

The mastoid antrum should always be the objective point when operating for mastoiditis. If that cavity contains pus all of the mastoid cells should be freely opened. If a sclerosed mastoid, the antrum and tympanum should be thoroughly cleaned—irrigating fluid being introduced always from the wound side and made to flow out through the meatus. In pyemic conditions of this kind it is probably best to chisel away the posterior wall of the meatus converting that cavity, the tympanum and antrum into one.

While there is no inviolate law to guide us regarding radical procedures, experience teaches that the sin of omission is often committed in these cases. Hundreds of lives have been lost by reason of delay or failure to perform the operation, while none are charged directly to it.

*Diseases of the Ear, by Dench.

XVII.

VARIETIES OF CHOLESTEATOMATA.

BY DR. J. HOLINGER.

CHICAGO.

By pathologists and otologists the following question has been argued: Is it justifiable to use the same name—cholesteatoma—for two tumors which are identical in their macroscopic and microscopic appearance, but different as to their etiology?

Joh. Mueller, and later, Virchow, described as pearl-tumor, or cholesteatoma, a rare tumor with the following characteristics. The size ranges up to that of a walnut, usually not over the size of a bean. It is well limited. The wall has the lustre of a pearl and consists of epidermis-like tissue or hornified cells. The contents have no blood-vessels or nerves, but consist of scales of hornified or epidermized cells, which are arranged in layers like the shells of an onion. Between the shells are numerous crystals of cholesterin. The tumor occurs in various parts of the body, mainly at the base of the brain and in the testicle. It usually causes no symptoms, but is an accidental finding at post-mortems. Most probably it originates from cast-off particles of epidermis, and is therefore congenital and extremely rare. In his original publication of 1855, Virchow describes several cases which we know now were not congenital, but acquired.

Habermann, from clinical and pathologic observations, described a tumor in the temporal bone, with identical appearance. Many layers of epidermized scales, in onion, shell-like arrangement were surrounded by a capsule of pearly, shining wall in the cupola of the tympanic cavity and the mastoid antrum, often filling the whole process. It was connected through large holes in the drum head, or even in the bone, with the external meatus. Its wall continued without interruption to the lining of the tumor.

Cholesterin crystals were present. This tumor was, however, not congenital, but was brought on in connection with chronic inflammatory conditions of the middle ear, and was acquired.

The careful study of the anatomy and pathology of the temporal bone by otologists as well as the clinical observation left no doubt that cholesteatoma of the temporal bone is not a rare but frequent finding, and is by no means an insignificant and good-natured growth like the congenital tumor of the brain and testicle, but causes quite often the death of its bearer by bringing the most infected material into contact with the lateral sinus, the dura and the pia, thus causing thrombophlebitis of the sinus, meningitis, or abscess of the brain. In order to understand this, we must remember two things: First, the epidermis, especially in children, has great power of regeneration and shows this in all parts of the body where epidermis and mucous membrane meet. As soon as the mucous membrane is diseased, inflamed or otherwise impaired, the epidermis grows over and covers the spot. In this way insulas or parts of normal epithelium are often overlapped and put out of existence. We find this at the nose, at the anus, etc. The process is especially energetic in the middle ear, as soon as epidermization has once begun. The aditus ad antrum, the antrum and the cells become inundated with epidermis. Afterward this epidermis is under very unfavorable sanitary conditions. If in washing or bathing any water gets into such a cavity through an opening of the drum, the water cannot evaporate, but will keep up a certain amount of irritation, the epidermis forms more scales and one cast after another of the wall is thrown off until the cavity is filled. But the process does not stop then, and here comes the second point: The cavity is enlarged by pressure, and some authors think that it even has a tendency to active enlargement. The bony septa between the mastoid cells are destroyed, or absorbed; the bone can not resist in any direction. The luckiest occurrence is a perforation in the external canal, or to the outside, and evacuation of the contents. Cases of that kind have been repeatedly observed, where an extremely slow growing growth appeared behind the ear or in the neighborhood of the mastoid pro-

cess on the neck. The diagnosis was difficult until the tumor bursted and a big lump of dry scales was thrown out. This is, however, the exception; the rule being perforation toward the brain and death. The beginning of the whole usually dates back to the earliest childhood, and is often brought into connection with one of those dreaded scarlatinal otitides. The organism adapts itself to the pressure, and the slow growth may progress unnoticed for 20 to 50 years; even parts of the labyrinth may be destroyed before a meningitis or sinus thrombosis claims its victim at short notice, after he has carried around in his head a perfect incubator loaded with germs, for a lifetime.

So far I have evaded the question how the epidermis entered into the middle ear. The study of this part of the subject is hardly less interesting than that of any of the rest. The simplest, and beyond all doubt the most frequently used avenue is the one I have already hinted at; through a perforation of the posterior upper quadrant of the drumhead bordering on the annulus tympanicus, with necrosis of a part of the adjoining bone. From there the way to the aditus ad antrum is measured by millimeters or fractions of millimeters only.

The second was under discussion for a long time, until Politzer settled it by showing a microscopic cut through a perforation of the drum, where the epidermis of the outer surface continued without interruption over the edge of the perforation to the inner surface where it replaced the normal epithelium of the drum membrane.

Another road was described by Bezold as cholesteatoma of the drum-head, or cholesteatoma of Shrapnell's membrane. In cases where the whole or parts of the drum-head, especially its most movable part, which is Shrapnell's membrane, are retracted for years, as happens often in children with adenoids or in cases of old adhesions of the drum to the promontory, sacklike excavations or diverticula will form. Now here two possibilities are given: The wall may become atrophic and the diverticulum rupture inward, its walls becoming adherent to the inner side of the drum and its surroundings in the middle ear, thus getting the epidermis to overlap the epithelium of the tympanic cavity. If the growth is once started it has no limit. The second possibility is, that in this diverticulum the scales may accu-

mulate and form a little cholesteatoma in Shrapnell's membrane. Cases of this kind have been described by Bezold. The tumors were only a few millimeters in diameter, but it is easily seen that nothing is in the way of a larger growth filling out the attic or the antrum.

In the last two cases an inflammation or suppuration of the middle ear need not have preceeded, and yet we might have epidermis in the middle ear and cholesteatoma. This kind, some authors claimed, was congenital, until Bezold demonstrated specimens and pictures to prove its nature. The investigations upon cholesteatomata are far from being closed. In one of the last numbers of the "*Archiv fuer Ohrenheilkunde*," Habermann published several cases of cholesteatoma of the external meatus, where the external meatus contained cholesteatomatous masses the size of a pigeon's egg in an excavation of the meatus to the rear into the cells of the mastoid. Microscopic examination of the wall of the diverticulum showed that the bone was not passive, but took an active part in the process, inasmuch as it was changed from compact bone into spongy bone. Last January, I showed in the German Medical Society, of Chicago, a patient with such an enlargement of the bony meatus, which was lined with a typical pearl-like, shining, cholesteatoma membrane, and from whom I removed masses the size of a hazelnut.

Much farther progressed was this same condition in a deaf and dumb boy of 12, whom I saw in my examinations of the pupils of the Institution for the Education of the Deaf and Dumb in Jacksonville. The entrance to the meatus was normal; one-half cm. from the concha the meatus was enlarged into a cavity the size of a walnut lined with the well known pearl-like membrane. The cholesteatoma comprised the external meatus, the mastoid cells, the antrum, the middle ear, and undoubtedly a part of the labyrinth. No trace of the drum-head or ossicles could be found. The wall was smooth and pearly, shining all over. That this process was inflammatory was shown by a sequestrum which was found in the center of the mass.

Finally, I may say a word as to cholesterin. It was considered by Joh. Mueller as an essential part of the tumor. We now know that it is merely accidental, and owes its existence to the decomposition of organic matter in an atmosphere where oxygen is lacking. Nevertheless the name of the tumor is taken from its presence. To differentiate the two, we call the rare one congenital cholesteatoma, the other simply cholesteatoma.

I will state that by far the greatest number of so-called incurable, chronic suppurations of the middle-ear are due to epidermization of its lining and cholesteatoma.

XVIII.

ACUTE LACUNAR INFLAMMATION OF THE TONSILS.*

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The essential morbid lesion in acute lacunar tonsillitis is a catarrhal inflammation affecting chiefly the lacunae or crypts of the tonsils. The process may be limited to a few crypts in one or both tonsils, or the entire lymphatic tissue in the pharynx may be involved. It occurs rarely as a primary disease, and is usually associated with a general catarrhal inflammation of the tonsils and naso-pharyngeal structures, which doubtless acts as the chief predisposing cause of the tonsillitis.

Its infectious nature is no longer in doubt, and the intensity of the disease varies according to the form of infection, its location, and the natural resistance of the patient. This will account for the comparatively mild systemic disturbance in some cases, and the profound toxemia in others. So far, no one has yet been able to isolate the specific micro-organism upon which it depends. Viellon¹ believed it to be due to the streptococcus pyogenes, which he found present in all of the twenty-four cases which he examined.

Meyer,² in the analysis of 53 cases, found staphylococci in 14, streptococci in 15, and a mixture of staphylococci and streptococci in the remaining 24 cases. He found

*Presented to the American Laryngological, Rhinological and Otolological Society at its annual meeting in New York, May 23 to 25, 1901.

also a diplococcus closely resembling that of pneumonia. Tubercle bacilli and Klebs-Loeffler bacilli have been found occasionally in the bacteriologic examinations of acute lacunar inflammation of the tonsils. Their presence is believed to be merely an accidental occurrence. It must be remembered that a great variety of pathogenic bacteria have been found to exist in the throats of perfectly healthy individuals. This, doubtless, can be explained by the normal tissue resistance, or what is commonly known as phagocytosis. The natural inference, therefore, would be that these organisms are of secondary importance as etiologic factors in diseases, the chief predisposing cause being some inflammatory process, which first weakens the physiologic resistance of the mucous membrane.

This may be sudden exposure to cold, lesions of adjacent structures or a lowered general vitality of the individual due to some constitutional dyscrasia or toxic material circulating in the blood.

Intra-nasal and pharyngeal operations are frequently associated with acute lacunar tonsillitis. Their etiologic relation is of considerable interest and importance to every nose and throat specialist. No matter how carefully these operations may be performed, or what precautionary measures may be taken in the after treatment, a certain proportion of the cases will be followed by acute lacunar inflammation. Granting that ordinary antiseptic precautions have been taken, this may be explained by:

I. The open wound acting as an accessible point of entrance for the bacterial infection, the poison being conveyed to the tonsils through the neighboring lymphatics.

II. Certain pathologic changes in the naso-pharyngeal structures due to the irritating effects of plugs or dressings within the nose.

III. The local and constitutional effects of the cocaine, which weakens the natural resistance of the patient.

Chronic enlargement of the tonsils naturally invites recurring attacks of inflammation. This is especially true if the tonsils are undergoing what is commonly described as follicular degeneration. The retained secretion decomposes, distends the lacunae, weakens the lining membrane by interfering with its blood supply, thereby furnishing

the chief requisite condition for bacterial infection. Ulceration and necrosis may occur at any point within the lacunae, and give rise to a parenchymatous tonsillitis.

Much has been said and written on the tonsils as portals of entrance for pathogenic bacteria. There can be little doubt that many of the acute infectious diseases owe their origin to micro-organisms, introduced into the system through the tonsillar crypts. They are favorite breeding places, veritable incubators for all kinds of bacteria, particularly the staphylococci and streptococci. The protective epithelium within the crypt once denuded, nothing is to prevent these organisms from entering the lymphatic and circulatory system. This will account for the frequent association of acute lacunar tonsillitis and rheumatism, endocarditis, myocarditis, nephritis, and many other infectious diseases. It is a mistaken idea to suppose that they have any other relation than a common bacterial one. The first effect of the micro-organisms is manifested on the tonsils, and to their systemic absorption through the tonsillar crypts, the rheumatic and other infectious processes so frequently associated owe their origin.

Wagner,³ of San Francisco, has been able to demonstrate in the urine and synovial fluids of patients affected with rheumatism and tonsillitis, the same identical micro-organisms. The theory of the microbic origin of rheumatic fever is to-day pretty generally conceded, as may be seen by Maclagan's⁴ article on "Rheumatism" in the Twentieth Century Practice of Medicine; also, the recently published report of a discussion⁵ on rheumatic fever at the annual meeting of the British Medical Association.

Acute lacunar tonsillitis occurs most frequently between early life and adolescence. This is explained by the abnormal development of the lymphatic tissues during this period of life. While the faucial tonsils are most likely to be affected, the disease is by no means confined to these structures. Any portion of the so-called tonsillar ring may show numerous white pultaceous masses, marking the lacunae or crypts concerned in the process. This is especially true of the lymphatic or adenoid tissue in the vault of the pharynx, often the only part affected, and escaping our notice, unless a post-rhinoscopic examination be made. Ordinarily the diagnosis can be made by

direct inspection, but not always so. While the anatomic appearances are quite characteristic, a bacteriologic examination should always be made to ascertain, if possible, the presence of a mixed infection, which not infrequently occurs.

Is acute lacunar inflammation of the tonsils contagious? To a moderate degree, yes. Abundant clinical evidence can be produced in support of this theory. We not infrequently find it epidemic, running through whole families, besides affording abundant proof in other instances of direct communication from person to person from a single exposure. Being distinctly a microbic disease, all that is required to make it contagious is exposure, and the necessary receptive condition of the patient.

It is needless, here, to do more than simply mention the cervical-lymphatic and ear complications of this affection. The extent of destruction done to these structures will depend largely upon the specific organism concerned in the process—the streptococcus naturally being the more destructive in its results, and most likely to be followed by suppuration.

The treatment of acute lacunar inflammation of the tonsils is both local and constitutional. Much confidence is expressed by some physicians in their ability to abort this affection. Personally, I cannot lay claim to any such superior skill. I wish I could. The remedy which is supposed to possess such magic power is the local application of guaiacol. It has some antipyretic and antiseptic properties, and is also a local anesthetic to a slight degree. This is all, I think, that can be justly claimed for it. I cannot recall a single instance wherein I have been able to successfully abort an attack of acute lacunar tonsillitis. As well might we claim to abort typhoid fever, diphtheria, or any other of the infectious diseases. All we can hope to do, by local treatment, is to modify the severity of the disease, as it is self limited, lasting at most but a few days. If the lacunae or crypts are distended with confined secretion, they should be evacuated by a blunt probe-curet, care being taken not to denude the epithelium more than is possible.

The indiscriminate local treatment of the crypts, digging and probing in the vain hope of dislodging or de-

stroying the poison supposed to be lurking therein, is, I dare say, productive of more harm than good. As a routine treatment, I have been in the habit of using the following combination:

R Acid carbolic.....gtt x
 Acid boracic.....
 Soda biborate.....aa ʒiss
 Hydrogen dioxid.....
 Borolyptolaa ʒi
 Aquae dest.....q.s. ad fʒviii

M. Sig. Use as a spray or gargle every two hours.

Small particles of cracked ice, or ice-water in the form of a spray or gargle, is of decided benefit in the early stage of the disease. If there be indications of any extensive lymphatic involvement, the ice-coil may be used.

The constitutional treatment consists in free purgation with calomel or effervescent phosphate of soda. For the fever, headache and muscular pain, I usually combine codein sulphate, salol and phenacetin, in proportions to suit the age and requirements of the case. If there is a previous history of rheumatism, I rely on the salicylate of strontium or soda in preference to the salol.

The tincture of chlorid of iron is a time honored remedy, the value of which cannot be over-estimated in this affection. It has a decidedly beneficial local effect, besides a selective action on the blood and kidneys. It should be given during the acute stage of the disease and continued far into the convalescence.

As one attack of acute lacunar tonsillitis predisposes the patient to recurrent attacks, it goes without saying that these offending and apparently useless organs, the tonsils, should be removed without delay during the quiescent stage. Under no circumstances should any operative procedure be employed during the active period of the disease.

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XIX.

NON-SYPHILITIC MUCOUS PATCHES OF THE THROAT.

BY O. JOACHIM, M. D.

NEW ORLEANS, LA.

The term "mucous patch," the plaques muqueuses or the plaques opalines of the French, is so closely associated with the manifestation of constitutional syphilis in the throat that I did not adopt the title of Non-Syphilitic Mucous Patches of the Throat without some hesitation. The particular throat eruption to be considered seems to present its greatest interest and importance in its lack of visible distinction from the specific variety. To emphasize the etiologic distinction appears best accomplished by calling it the "non-syphilitic mucous patch."

The diagnosis of the mucous patches, such as we know by the books is, as a rule, not difficult. Syphilitic mucous patches appear as grayish or pearly-white patches of thickened and loosened epithelium, with clearly defined hyperemic outlines of variable size, modified in their appearance by local effects and state of development. They occur in syphilis with relative frequency on the lips, corner of mouth, edge of tongue, soft palate, tonsils and in point of time, usually first on tonsil and soft palate. If due to syphilis, they have a chronic course and are accompanied by glandular enlargement; they often quickly disappear and show great tendency to relapse, even for years.

They are usually sufficiently characteristic not to be readily mistaken for other throat affections. Under certain conditions, aphthous stomatitis may simulate mucous patches. The differentiation rests upon the febrile, sudden onset in aphthous stomatitis, which mostly affects children, its painful inflammatory character, and the thick, yellowish exudate. Herpes buccalis, which seems to pre-

fer much the same places upon which mucous patches are observed, and which may be confounded with them, differs in its greater painfulness and the preservation of its characteristic lesion, of small blisters around the edge of the eruption, and the co-existence of external herpes. In the rare and serious lesion of pemphigus the differential diagnosis is the more important, as, under the assumption of existing syphilis, a favorable prognosis would be a severe error and anti-syphilitic treatment of positive harm. By close observation the remains of the elevated cuticle is still apparent and in some of the lesions partly preserved.

More frequently than the diseases mentioned, the condition known as leucoplakia gives rise to difficulty in differential diagnosis. In leucoplakia, which affects the tongue, cheeks and lips, not the tonsils and soft palate or under surface of tongue, the lesion is essentially white and remains in the same form and location indefinitely, in contradistinction to the shifting character of the mucous plaques. The surface is smooth, tough or warty, subject to fissures, not to ulcerative processes, nor soft, macerated nor like mucous patches, bleeding on the touch of the probe. Leucoplakia is aggravated, rather than benefited, by anti-syphilitic treatment. Superficial lesions, sometimes simulating mucous patches, may be due to chemical action on the mucosa. The appearance of the mucous membrane, when nitrate of silver has been applied, is always cited to convey the idea of the appearance of mucous patches. This can not be confounded with it, however, as its effects are of the most transient nature. It may not be amiss to call attention to the superficial lesion caused by the chlorate of potash tablet as dispensed by the druggist. Chlorate of potash has its uses, but in no such dosage and concentration as used in this form. The laryngologic literature every now and then recites cases of death from chlorate of potash poisoning, and the manner in which chlorate of potash tablets are taken by the public for every kind of sore throat and dispensed by the druggist, constitutes, to my mind, a decided abuse.

To these diseases which may, at times, simulate mucous patches I want to add two recent observations which, to my judgment, appear to prove the existence of a throat

eruption apparently so much like syphilitic mucous patches that their differentiation seemed impossible by the usual marks of distinction.

A young man, about 23, presented a throat condition to all appearances like the mucous patches of secondary syphilis on the soft palate and uvula, extending when first observed, to the left tonsil. It presented all the characteristics of mucous patches and suspicion of its specific nature was at once expressed. Proper and thorough investigation failed to disclose any initial lesion. The patient's statements of non-infection were corroborated by the physician who, for some years past, had the patient under observation. Local treatment did not seem to be of benefit, as new areas became involved, while the former patches healed. After two weeks the patches had all healed, but not before reaching to the right tonsil, which became covered with a mucous patch, while under observation and treatment. No internal medication was given. The secondary skin eruption was closely watched for, but never appeared.

The second case was that of a young colored woman. The mucous patch appeared only on the left tonsil. Primary infection being denied and careful examination failing to reveal any reason for disbelieving her statement we omitted internal medication, to see what local treatment alone would effect. The patient's throat condition healed also in about two weeks. The tonsil on the left side appears to have healed, leaving the superficial fibrous trabeculae apparently hyperplastic. In this case, no skin eruption ever appeared and no further trouble developed.

The existence of mucous patches has been largely the deciding factor in the diagnosis of syphilis, even if primary infection is denied, and no visible primary lesion or the evidence thereof in the shape of cicatrix is ascertainable. It is an acknowledged fact that in the female the existence of the primary sore is, at times, accompanied with such trifling complaints as to escape the attention of the infected women. The throat symptoms may precede the eruption as well as be concomitant with it; and the latter may be so ephemeral as to escape notice. Anamnestic data evidences may, therefore, not be always available to help us in the decision, nor is it always possible to inter-

rogate our patients as the existence of a primary infection. The denial of the patient, in this respect, should be taken with great caution and then only when corroborated by the family physician and by a thorough and careful physical examination.

So strongly has the existence of mucous patches been associated exclusively with syphilis that Jullian described syphilis as: "*Un chancre, une roseole fugitive et par suite de plaques muqueuses, de recidives de plaques muqueuses et toujours de plaques muqueuses.*"

But, though it occurs rarely, mucous patches, or what looks like mucous patches, do appear in a non-syphilitic subject. And, what happens when we assume syphilis to exist in such an individual, or one suffering from conditions in which the differential diagnosis has not been made? The length and effects of treatment, the knowledge of being afflicted with the disease, its influence on the patient's mind, on his plans, or his capacity for work, the probable harm to existing more or less innocent affections, and the severe mental effect from apparent inefficiency of treatment, as is in leucoplakia, and the not indifferant effects of the prolonged and energetic treatment instituted for the cure of syphilis, such as local and general hydrargyrosis and others need only to be mentioned to prove the desirability of abstention from specific treatment until evidences beyond this usually accepted symptom appear. It seems to me imperative to wait until such evidence becomes manifest to dissolve our doubts. And, while waiting for developments, the behavior of the mucous patches of the non-syphilitic appeared, to me, peculiar, in one of the cases. The rapidity of movement of the diseased area was unlike what I had seen in the syphilitic mucous patches and reminded me of the condition of the tongue known as idiopathic ulcers of the tongue of Schech or benign plaque of Caspari, where the disease also changes location rapidly: to this disease this condition seems in some respects analogous. The tendency to healing was from the edge, inward; while in syphilitic mucous patches, healing is from the center toward the circumference. Topical applications seem to have little or no influence on them, and their course extends over about two weeks with no tendency to relapse when healed. When there is no

relapse and when no other manifestations occur we have no right, it appears to me, to look upon them as syphilitic, if primary infection can not properly be assumed.

It is the main purpose of these lines to establish the fact that non-syphilitic mucous patches do occur, and the conclusion we must adopt from it is that the existence of mucous patches in the absence of corroborating statements and evidence is insufficient for diagnosis for the treatment of syphilis.

XX.

DISEASE OF THE UPPER AIR PASSAGES IN RELATION TO MENTAL DEVELOPMENT.

BY LA FAYETTE PAGE, A. B., M. D.

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The two chief conditions within the organism which may retard mental development are an impure and imperfect blood supply to the growing nerve centers, and over stimulation from abnormal conditions which may exist in any organ of the body. The first of these conditions, an impure and imperfect blood supply, may be considered under the head of auto-intoxication as originating in the diseased portions of the upper respiratory tract. That this is a favorable region for the lodgment of germs and the elaboration of toxins would, it seems to me, be obvious to every one who has worked in these regions. Pantzer in a paper entitled "The Nose as a Factor in Post Operative Diseases" has called attention to this region as a source of infection. Bouchard in his work on "Intoxication in Disease" does not mention this part of the organism as being a source of intoxication. We may assume that the general doctrine of auto-intoxication is well founded, since so much convincing proof has been adduced in its favor. If this doctrine be true it only remains for us to show that the upper respiratory tract in disease is a favorable soil for the generation of toxic agents, and that they may be easily absorbed into the circulation owing to the rich glandular supply. We can readily understand how defective drainage and pressure in the nasal fossae and tonsillar tissues, causing swelling and stasis in the venous and lymphatic channels affect the brain functions. The intimate relation existing between the lymphatic spaces and the blood vessels of the nasal mucous membrane and the subarachnoid space has been thoroughly demonstrated. Schwalbe and Retzius were able to inject the lymphatic vessels of the nasal mucous membrane through the arach-

noid space. It has also been shown that an equally intimate relation exists between certain venous regions of the nose and the interior of the skull. The dullness which so often accompanies engorgement and stenosis of the nasal chambers is probably due to the large percentage of carbonic oxid contained in the stagnant venous blood. The capacity of the lymphatics connected with the upper air passages for rapidly absorbing toxic materials generated in this region is often observed in connection with diphtheria, tonsilitis and other acute affections. We sometimes see a rapid toxicity following a slight cauterization of the nasal mucous membrane with the electro-cautery. The frequent enlargement of the glands of the neck, associated with chronic diseases of the tonsils and chronic nasal catarrh, indicates the constant toxic absorption from these diseases. The ragged, irregular surface of the adenoid and tonsillar tissues covered with their tenacious secretions certainly offers an inviting soil for all forms of morbid germs. Hypertrophy of the follicles of the tonsils leads to contraction and engorgement of the lacunae with retention of the secretions which easily become infected. Upon removal of these organs we often find the lacunae dilated and filled with offensive pus. The effects of enlargement and disease of the adenoid and tonsillar tissues, in causing insufficient respiration, defective oxygenization, and infection of the intestinal tract (thus causing impaired nutrition) are too far-reaching in their effects on the organism and its development to be considered here. We have equally as prolific a source of septic infection from the nasal chambers and their accessory sinuses as in the tonsillar tissues. In the various forms of abnormalities and disease of the nasal fossae, and the often accompanying affections of the adjacent sinuses, we have all the conditions present which favor septic generation and absorption. Engorgement of the erectile tissues, the various irregularities of the septum occluding the orifices of the adjacent sinuses with polyps, hypertrophies, etc., are the common forms of obstructions which affect nasal drainage and are thus conducive to putrefactive changes. It is only necessary to refer to these sources of contamination of the blood supply in retarding mental development through imperfect nutrition, as their importance is already recognized.

We may next turn attention to the other phase of the subject, the effects of nasal irritation upon the developing brain centers. In considering the anatomic structure of the nasal fossae as compared with other organs of the body, it is evident that it must be a fruitful source of reflex irritations in a diseased state. Its erectile tissues are encased in a resistant, bony framework, so that pressure on the nerve terminations may be produced by any slight anomaly of development or variation from injury or disease. The peculiar physiologic functions of the intranasal tissues requiring constant adjustment to the changing thermal and atmospheric conditions, are such as require a most delicate nervous mechanism. The nerve supply is so rich and so intimately associated with the cortical areas of the brain that it is easy to understand how the psychologic functions of that organ may be disturbed by irritations arising in these parts. Through the sympathetic ganglia a very close relationship has been traced between the terminal nerve filaments of the nasal mucous membrane and the vasomotor nerves supplying the arteries of the brain and spinal cord. Authorities agree that sensory impulses may be transformed into vasomotor impulses, thus affecting the blood supply of the brain. Irritation of the fibrillae of the trigeminus, which forms the chief source of innervation to the upper air tract, may pass directly to the cerebral cortex through its connections in the medulla. Besides the trigeminus and its sympathetic connections we have the upper region of the nasal fossae richly innervated by the olfactory which is similarly associated with the cortical areas of the brain. Edinger says in his new work on "Comparative Anatomy of the Central Nervous System," that the cortex may be accepted as the location of those psychologic functions which are consciously executed after consideration through the use of memory pictures. So is the demonstration of a cortical bundle with the nucleus of a special sensory apparatus of great interest to comparative psychology. Hence, he says, the most important result up to the present time that we have been able to demonstrate is that the first cortical area developed in the animal kingdom was the olfactory cortex. It is an interesting fact in comparative psychology that the oldest cortex represents

only a single sensory center, the olfactory center, and that all associations which serve them as a foundation, all memory pictures which they retain, are such as serve especially the sense of smell. The relation between the nasal mucosa and the cerebral cortex through these nervous connections, the trigeminus, the olfactory, and the sympathetic, is so intimate that it is evident that any irritation arising in the intra-nasal spaces from disease or deformity may be transmitted either through the medulla or direct to the higher centers of the brain. As a result of the constant irritation passing into the nerve centers we have, in patients so predisposed, a great variety of reflex disturbances. There is a long list of paroxysmal disturbances whose etiology is directly due, or has been traced, to the diseases of the upper air tract. Among the most common forms we have sneezing, cough, laryngo-spasm, lachrymation, tinnitus, asthma, palpitation and headache. Among the rarer affections may be mentioned chorea, epilepsy, neurasthenia, melancholia and insanity. The course of these disturbances, or, as they have been termed, nerve storms, usually take the path of least resistance. Jackson speaks of them as *discharging lesions*, especially the epileptiform seizures. If the irritations initiated in the upper respiratory tract are sufficient to cause such violent discharges of nerve energy as we see in asthma, chorea, and epilepsy in those who are so predisposed, it may be readily assumed, that the same form of irritation in those who have a greater resistance may cause a gradual leaking of energy and a consequent weakening of the central nervous system. When those reflexes which have a physiologic purpose become exaggerated and continuous from some form of irritation, they become a source of drain on the energy stored up in the nerve centers. Some physiologists tell us that any excess of nervous expenditure to one organ over the normal amount which should be furnished is done at the expense of others, sooner or later. A bony spicula or an enlarged middle turbinate may, by constant pressure irritation, cause a weakening or exhaustion of its immediate nerve center with an increasing tax on those centers most intimately correlated, until the whole nervous system begins to show signs of over-taxation. The rapidity with which these symptoms of weakening show themselves de-

pend on the inborn vigor and resistance of the nervous system. The effects of these irritations on the nerve cells have been studied by Hodge, Nissl, and others. Every stimulus entering the cerebral cells calls forth a certain expenditure of energy stored therein, and it is plain that a constant over-stimulation means exhaustion sooner or later.

Donaldson says that repeated in-coming impulses produce certain changes in the cell bodies, that finally some of them discharge with a force and rhythm of their own, and once taken up by the central cells even slight stimuli diffuse themselves over the entire central system. Goldscheider in a recent essay defined the "neuron threshold" to be "the degree of excitation of a neuron which just suffices to call forth a fruitful excitation in a neuron to which it is in contact; that is, that sufficient to call forth a sensation, a movement, etc." These studies afford valuable suggestions in reference to the transference of excitation from one nerve center to another, and they also indicate what slight peripheral irritations may instigate enormous discharges of nerve energy (Barker). Friedrich has seen a true epileptic attack produced by nasal examination. The importance of normal stimuli to the cortical cells for their healthful growth and developement can no longer be questioned. Gehuchten has emphasized the physiologic fact that for the maintenance of absolutely perfect function of the cerebral cells the relation of stimuli to the reparative, nutritive power of the cells must be perfectly adjusted. Edinger, Weigert, and others, assume that if the stimuli be received in excess a nerve cell is no longer able in the interval of active function to repair the loss sustained by the functional activity; as a result progressive degeneration ensues. Barker says that it will be the task of the clinical neurologist in the future to decide from his study of a given case as to the existence of abnormal neuron threshold values; further, what neurons are receiving an excess of stimuli, and what neurons are being insufficiently stimulated, and to outline his treatment accordingly. The treatment of neurasthenia, tabes, and many other degenerative processes, are based on these physiologic principles.

The writer has tried thus far to indicate in as brief man-

ner as possible those pathologic conditions which may exist in the upper respiratory tract, which favor toxic generation and absorption, thus affecting the healthful nutrition of the developing nerve centers; and especially to make clear the effects of irritations arising in this region causing over-stimulation of the brain functions. These are among the most important underlying conditions that so often exist within the organism which produce dullness and irritability. The effect of impaired nutrition and the constant drain on the plastic, immature brain soon manifests itself in impairment of the intellectual processes. Children with catarrhal disease or enlarged tonsils and adenoids soon become exhausted with any mental work. Their perceptions become quickly dulled, their memories become halting and inaccurate, and the reason grows illogical, while their bodily movements indicate restlessness and weariness. The general appearance of these children is so characteristic and their natures are so often perverted that their teachers recognize that some physical defect is retarding their development. Attention has often been called to the defects in physical development of children with enlarged tonsils and adenoids by various writers on the subject, while the mental condition is scarcely noted. The writer has been often impressed by the mental condition which exists in these children. It is a condition which deserves to be more generally appreciated. The change which takes place from removing the enlarged tonsillar tissues, or from securing proper nasal drainage, and relieving pressure irritation, is so conspicuous in lifting the cloud from the intellectual field that the change of expression may be noted in a few weeks from a dull, languid, despondent air to one of vigor and happiness. The constant night terrors and dreams which haunt the sleep of these children disappear and refreshing sleep at once follows the removal of the irritation. Where these conditions are allowed to remain throughout childhood and adolescence, their impress becomes a very important factor in determining character. A more thorough analysis with better data than the writer has been able to obtain, might contribute to the subject of mental hygiene, and give a better insight into those diseased states of the organism which affect mental growth and vigor. Among its most important teaching is that the stages of mental growth co-ordinate with the stages of physical growth and that any impairment of physical growth retards mental growth.

XXI.

ETIOLOGY OF NASAL DEFORMITIES*.

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In opening the symposium on Nasal Stenosis it falls to my lot to present a few facts relating to the "Etiology of Nasal Deformities." This short paper is presented for the purpose of bringing out a general discussion rather than to describe the entire subject in full. Nasal deformities may be defined as such abnormalities of the nose in general, either external or internal, as may lead to defects in the external conformity of the organ, or the internal anatomic relation of the parts that go to make up the organ as a whole. Such deformities may or may not result in nasal insufficiency or stenosis. McBride states in his book on Diseases of the Throat, Nose and Ear that "From absence of the nose to a reduplication of this organ different stages have been met with. The septum has been found extending backward so as to divide the nasopharynx into two cavities." On the other hand, deformities that seem to be extensive from an external standpoint may not seriously interfere with the normal physiologic function of the nose. In this connection it is well to understand that there is a difference between nasal insufficiency and nasal stenosis. This fact has been clearly brought out by Pegler† in a recent article in which he says that nasal insufficiency is a term implying "a continuous or intermittent inability to breathe satisfactorily through the nose,

*Read before the middle section of the American Laryngological, Rhinological and Otological Society, December 29, 1900.

†The Journal of Laryngology, Rhinology, and Otology.

varying in degree from a comparatively slight inconvenience to anything short of actual obstruction." This condition may be bilateral or unilateral; it may be constant or periodical; as a matter of fact it is rarely continuous. On the other hand, stenosis results from abnormalities and deformities that give rise to a permanent and complete obstruction to nasal respiration. The causes of these deformities, whether resulting in insufficiency or stenosis, are in many particulars the same. Among the external deformities, collapse of the alae nasi may be mentioned as one that is rather common. This condition may arise from several causes, but seems chiefly to come as a result of prolonged intranasal or intrapharyngeal obstruction. Children who have long suffered from adenoid vegetations in the vault of the pharynx, come finally to present this condition. In fact it is one of the facial symptoms found among those patients who have suffered from the above-named condition. If the adenoids are never operated upon, or are operated upon after several years of suffering on the part of the patient, the collapse is liable to remain permanent. All have seen cases where the peculiar facial expression of adenoids is carried through life, even though a long delayed operation has been performed. Collapse of the alae nasi may also be congenital, or as a result of inadequate development of the nasal organ. Peculiarities of nasal outline are certainly congenital, and while we never inherit diseases directly, we certainly do inherit peculiarities of bodily contour. "Like father like child" is a maxim here as well as in other characteristics, malformation, deformity or anatomic peculiarity of the nasal tract may be as truly inherited as some peculiar external conformation.

Traumatism is an important factor in the causation of external nasal deformities. It also is a frequent form of internal deformity as well. Severe injuries to the nose may displace the nasal bones or septum and, if neglected, result in permanent nasal deformity.

Syphilis must also be considered as a cause of external deformity, although the destructive process takes place within the nasal cavity. Extensive external deformities of the nose are frequently due to the destructive ravages of this disease.

Next in turn might be mentioned lupus, a disease which results more or less in external deformity of the nose.

Tumors of various kinds, whether bony, cartilaginous or soft, and whether located within the nasal cavity, the sinuses or near-by structures, should be considered as a cause of external deformity of the nose. Deformity from this cause, especially in the later stages of malignant disease, or from osteomata are at times very extensive. One variety of external deformity might be described more fully. I refer to those injuries resulting from direct violence upon the nasal bones. The spreading apart of the nasal bones together with the impaction of the cartilaginous septum upon itself, results in a severe deformity, the nose being spread widely upon the face with a dip in its external contour. This variety of deformity is especially mentioned because of late a somewhat new operation has been recommended which has given favorable results by restoring the nose to a much more natural outline. Of the internal deformities of the nose, considerable may be said. That somewhat rare condition known as atresia should be first mentioned. By this term is meant a congenital closure of the nasal passages either anteriorly or posteriorly. When the obstruction is in front it is always membranous, but when the choanae are closed it may be either membranous or osseous. Another cause of internal deformity results from external injury to the nasal bones as described in the preceding paragraph. In these cases the nasal chambers may retain their usual size in the inferior meatus, but are partially or wholly closed in a superior meatus. The septum will also be much thickened as a result of impaction or else forced into some one of its deflections and deformities.

Disease of the turbinated bodies resulting in extensive hypertrophies, bone enlargements, and cysts, should receive our consideration. Of these the middle turbinated bone is the one most frequently diseased. Membranous hypertrophy of the middle turbinate is a rare condition, unless mucous polyps are to be considered under this head.

Cystic enlargement is a most common form of disease of this bone. It is not necessary before this body of trained rhinologists to go into the pathology of this condition;

suffice it to say that, barring the septum narium, it is the most common cause of internal deformity. Resulting as it does from disease of the contiguous sinuses, it opens up a wide field of most interesting study for the rhinologist. In my experience the inferior turbinated bone is not frequently diseased or hypertrophied; [it is often congested and inflamed and of course it varies in appearance, and apparently in size, while carrying on its normal physiologic function. This much-abused bone, subjected as it has been to the cautery, the knife, and various forms of escharotics, even when it might better have been left alone, is occasionally the seat of disease. As a rule it is a well behaved organ, but it may often appear to be out of place, when, as a matter of fact, its apparent abnormality is due to external influences like the narrowing of the external nose, collapse of the alae nasi, disease of the antrum, etc. Abnormality of the septum narium must be considered as the most frequent cause of intranasal deformity. The prominent position given to the nose in the make-up of the facial contour, a considerable portion of which is held in place by cartilaginous frame work, renders this cartilage a free victim to external violence.

In a paper read before the medical society of the county of New York, I called attention to it in the following words: "Injuries to the nose resulting in deformity of the septum or displacement and enlargement of the turbinated bodies may be considered a causative agent in the development of chronic catarrh. While not so prominent in young childhood, the nose is of sufficient prominence to render it the most liable of all the organs of the face to injury. Young children usually get their bumps, blows, and falls upon this organ. At this age the turbinated bodies are easily displaced and the cartilage easily twisted. A slight twist to the cartilaginous or bony septum, like a bend to the twig which results in the deformed and unsightly tree, transforms it from its normal shape into one of the various deformities so profusely described in rhinologic literature. Stenosis may result and may mark the beginning of what is destined to become an aggravated form of catarrh. These causes are mechanical and the development may be slow or rapid, according to the severity of the injury or to its special location. The stenosis acts as a mechan-

ical obstruction to both respiration and to the outflow of the normal mucus. It is usually anterior, and the changes in the highly organized tissues immediately posterior to the obstruction from a diminishing of atmospheric pressure, result in permanent thickening of the membrane and true hypertrophy. True, these results, because of their slow development, in their more serious forms, do not usually manifest themselves during young childhood, although the starting point in a large proportion of cases must be dated to the reception of an injury in early life. Thus traumatism plays an important role as a causative agent in the development of the affections under consideration."

Traumatism is not the only cause of deformity of the septum; it may be congenital or it may result from disease. The varieties have been variously described by many different observers. Kyle's classification serves the purpose very well.

"(1) The split cartilaginous septum, with bulging into both nostrils.

(2) Dislocation of the columnar cartilage.

(3) Simple deflection in which the cartilage is very thin.

(4) The letter S deflection.

(5) Deflection of the cartilage with involvement of the bony septum.

(6) Deflection due to the splitting of the cartilage, with bulging on one side only.

(7) Deflection in which there is redundancy of tissue overlapping the septum and extending close to the floor of the nose."

Osteoma of the articulation of the septum frequently enters largely into the general deformity of the septum itself. This is usually associated with enchondroma of the cartilage. The numerous varieties of septal perforations should not be overlooked as causative agents of internal deformity, while dislocations of the various anatomic structures entering in to the make-up of the nose, are also to be considered. Dislocations of the columnar cartilage are occasionally to be observed. Foreign bodies long retained in one or both nasal chambers occasionally result seriously. Syphilis, as heretofore mentioned, results in serious intranasal deformity, sometimes destroying the whole intranasal structure, often opening the external walls of the

cavity into the antrum of Highmore, the ethmoid cells, or the frontal sinus. Malignant tumors, especially sarcoma, and carcinoma play a somewhat important role in this same connection, although usually primarily found in nearby structures and cavities, the secondary encroachment into the nasal cavity is very extensive. Osteomata in a like manner enter the same domain. One other functional condition which results in internal deformity, may be briefly mentioned. I refer to hay fever and nasal hydrorrhea. The water-logging of the soft tissues of the anterior nares destroys temporarily the internal contour of the nose.

In this brief paper I have attempted to outline the etiology of nasal deformities stating them as they have appeared to me from my personal experience, rather than from any prolonged consultation of the various authorities. Many important points therefore may have been overlooked, and it is to be hoped that the discussion which is to follow will help to perfect an otherwise imperfect presentation of the facts.

XXII.

A CASE OF ANGINA EPIGLOTTIDEA ANTERIOR.

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At the meeting of the American Medical Association at Atlantic City, June, 1900, Dr. C. F. Theisen reported before the Laryngological section three cases of this disease. The discussion which followed showed that the gentlemen present were not inclined to look upon the affection as a distinct disease. As I have recently had a case of this form of angina, I desire to report the same, and to insist that we have to do with a distinct localized inflammatory condition of the anterior surface of the epiglottis; a condition which has nothing in common with the ordinary edemas, which we see in the larynx, on the uvula, etc.

F. C., male, aged 44, a man of perfect physique and exemplary habits, consulted me on June 7th. The night before he had been suddenly seized with a sore throat, and it soon became exceedingly painful for him to swallow anything. He had gargled and sprayed his pharynx without relief, and the swallowing of saliva became so painful that he could not sleep. The examination of the pharynx and naso-pharynx revealed nothing abnormal, not even a mild congestion. Inspection of the larynx disclosed a red, edematous swelling on the anterior surface of the epiglottis, almost filling in the valleculae. Otherwise the larynx was entirely normal. The swollen parts were quite hyperemic, showing an acute inflammatory process. The whole appearance was unlike any other laryngeal edema I had ever seen. There was no history of trauma of any kind. Temperature 100°, pulse 96, slight feeling of malaise. Treatment consisted of cold applications externally, and the swallowing of small pieces of ice. Locally, the parts were penciled with 5 per cent. nitrate of silver solution. In four days everything was again normal.

The above case I consider a typical one of angina epi-

glottidea anterior, as so well described by Theisen. Here we have a man in good health, of perfect habits, suddenly seized with an angina, accompanied with malaise and fever, and with the local manifestations limited to the anterior surface of the epiglottis. This was no alcholic edema, nor an edema which extended from an inflammed area near by. It was such a distinctly acute and localized affair, that one's first thought was of an injury from swallowing some sharp substance. No bacterial observations were made, so that no light can be thrown on the etiology. From this case, and those reported by Theisen in the transactions of the section on laryngology, I am firmly convinced that there is a rare but definite disease to be designated by the term at the head of this article.

22 W. 7th.

XXIII.

PHARYNGO-MYCOSIS.

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Pharyngo-mycosis is a somewhat uncommon chronic affection in which a fungus is developed at the mouths of the follicles or in the tonsillar crypts. Occasionally the growth extends to the pyriform sinuses and into the larynx. *Leptothrix* and *bacillus facultatus* are the fungi usually found in the deposits. It is most commonly a disease of adolescence and is supposed to be more frequent among females than males. There are many and various opinions as to the exact bacillary cause, in fact, there are nearly as many opinions advanced as there have been different authors. In a study of the history of the growth do we find our pathology.

The process is a slow growth, gradually spreading from one or two points, and presenting no symptoms save those of an objective character. The microscope usually shows well-formed mycelia within the mass, with sprouting tufts, holding more or less secretion in a process of degeneration, leucocytes, dried mucin, epithelioid cells.

These cells do not seem to be of deep origin, but appear to attach just inside the mouth of the follicles. The tissues of the surrounding parts are seen to be swollen and edematous, but the general nutrition of the part is not materially interfered with, as the lymph channels are not disturbed to any great extent.

I have said that the symptoms of this disease are almost entirely objective, for the patients might, and indeed do, often go on for a long time without knowing of the existing condition until they happen to see some of these whitish spots in the throat, or are told of them by someone

making an inspection of the throat in consequence of an attack of tonsillitis, or something of the sort. Indeed, mycosis is often mistaken under the diagnosis of follicular tonsillitis; slight soreness and stiffness of the throat may present, and patients often complain of a disagreeable taste. Upon inspection the appearances are quite characteristic. Dotted here and there over the surface will be noticed small, pearly-white tufts, very distinct and separate, rising above the surface of the epithelium, and clinging tenaciously to the structures. Upon attempting to remove these spots or tufts with a probe or cotton swab, it will be found quite impossible to do so, for they are embedded deep in the tissues and are of a spiral formation. Considerable force is required to pull out one of these little plugs and after removal the growth quickly reappears. If the disease has been present for a long time, it is occasionally found that these small tufts will coalesce or run together, and all the pharyngeal structures, together with the base of the tongue, become involved.

It is not likely that this condition will be confounded with anything else unless it be chronic follicular tonsillitis or a diphtheritic process, and a little study of the case will easily clear the diagnosis. I am not one of those who hold that mycosis is a pre-tubercular condition, although a low state of the general health, and digestive disturbances do probably in a measure predispose.

As to treatment, many things have been recommended, and the essential thing, aside from building up the patient's general health, is to destroy, as far as possible, all of the fungoid growth, removing by the use of curet or forceps. Applications of carbolic acid, chromic acid, and various astringents and antiseptics are used, but nothing does so much good as to remove all infected tissue, as far as possible, by means of the curet, forceps or tonsillotome. When this is difficult or impossible, use the galvano-cautery point.

All of these cases require long periods of treatment and much patience upon the part of both physician and patient.

In my own practice I recollect several cases, two of which occurred in females of one family, both cases having been looked upon as tonsillitis, each patient making a complete recovery after some months.

ABSTRACTS FROM CURRENT OTOLOGIC, RHINO- LOGIC AND LARYNGOLOGIC LITERATURE.

I.—EAR.

Mastoiditis Complicated by Paralysis of External Rectus.

PISCHEL, San Francisco. (*Archives of Otolaryngology*, Vol. XXX, No. 2.) A man, aged 34, four months before coming under observation had double-sided acute middle-ear suppuration. Pain again recurred in the right side of the head, mastoid tender on pressure. Mt. bulging. Temp. 100° F. Paracentesis was done and a muco-purulent discharge appeared. Diplopia with paralysis of right external rectus; veins of fundus oculi congested. Mastoid operation, now undertaken, showed antrum full of pus. The temperature still kept elevated 1° to 2° F. and a little pus kept coming away from the depth of the mastoid wound. Forty-one days after the first mastoid operation, the whole mastoid process was removed and the sinus exposed. Six and one-half months later, some suppurating mastoid cells were again curetted and in the detritus staphylococcus pyogenes albus was found. The diplopia still persisted. *Campbell.*

Acute Otitis Media, Cerebellar Abscess; Operation. Death from Meningitis.

PHILLIPS, New York. (*Archives of Otolaryngology*, Vol. XXX, No. 2.) The patient, aged 21, had scarlet fever at seven years of age. Three weeks before coming under observation he had suffered from an attack of la grippe, accompanied by pain in and discharge from the left ear. On examination the mastoid was tender on pressure, but there was no external redness or swelling. Two leeches were applied. Temp. 99.6° F. Pulse 80. Microscopic examination of the pus showed streptococci and diplococci.

Operation revealed pus beneath the periosteum. The entire cortex was removed. The antrum contained a small amount of pus and was carefully curetted. The lateral sinus was exposed and showed no signs of pulsation. An aspirating needle passed upward and downward in the

sinus withdrew no blood, so an incision was made in the sinus wall and clot removed till a free flow of blood followed from the upper end. The wound was packed with gauze and patient returned to his ward. For six days patient's condition was good. He complained of intermittent headache. The optic nerves were hyperemic. Three days later he passed into a state of coma. Temp. 100.4° F., P. 112, R. 22.

The next morning temp. 105.8° F., P. 118, R. 12. He had occasion intervals of consciousness. On removing the dressings, considerable pus was found upon the surface of the sinus, posterior to the knee. After removing the pus, it was found that a probe could be passed inward and slightly upward $3\frac{1}{2}$ inches from the external table. Upon removing the probe pus flowed freely.

This pus tract was enlarged with a bistoury and from the depth of the abscess, together with the direction taken by the probe, the author concluded that the abscess cavity must be in the cerebellum.

A long drainage tube was carried to the bottom of the wound and irrigations of 50 per cent. peroxid of hydrogen employed, and this followed by a sterilized solution of ac. boric. Each irrigation caused hiccough. From this time patient gradually improved, a septic phlebitis in the leg gave him but little trouble and the cavity was gradually closing. The wound was nearly healed and he was discharged, with orders to return daily for treatment. One week after his discharge from the hospital, he was suddenly seized with a violent frontal headache and persistent vomiting. His friends stated that he had eaten immoderately on the previous day.

He was screaming with pain which hypodermics of morphia could not control. While preparing for further operation he suddenly expired. On autopsy the dura was found to be adherent along the mesial borders of both hemispheres. The whole external surface of both hemispheres was covered with purulent exudates measuring $2\frac{1}{2}$ cm. in diameter. On removing the brain an orifice about 1 cm. in diameter was seen in the base of the skull on the left side, at a point corresponding to the mastoid process. A sinus large enough to admit the probe entered the left lateral lobe of the cerebellum. No abscess cavity remained

but an irregular blood-stained area extended inward about 2 cm.

Examination of the exudate and the depth of the brain tissue showed innumerable streptococci, which were probably streptococci pyogenes. *Campbell.*

Primary Otitis Externa from a Clinical Point of View.

SCHMIDT, Odessa. (*Archives of Otolaryngology*, Vol. XXX, No. 2.) As the lining of the auditory canal is a continuation of the integument in general, therefore we have the same differentiation in disease, viz., diseases principally of the epithelium (ichthyosis, the most pronounced form) and diseases with participation of the corium (dermatitis, mild form, and eczema, severe form).

The skin of the auditory canal, easily damaged and altered by dermatitis, appears to induce aural conditions favorable for infection. Scratching—infecting—produces furuncle and very frequently suppurative phlegmonous cellulitis in the auditory canal.

In squamous, unirritating dermatitis the author employs oil of thyme 1:100-1:1000.

As a remedy for the moist stage of dermatitis alcohol ranks first.

When infection from scratching has resulted, with acute swelling of the auditory canal, then try and disinfect the canal with cotton soaked in bichlorid of mercury solution 1:1000.

The fatty products of secretion and desquamation having been removed by means of probe and syringing, a tampon is carried in as far as the Mt. Another cotton plug is placed in the concha and over this a dry pad is applied. Then by removing the outer pad the patient applies by instillations a small quantity of bichlorid solution every 4 hours. The tampon in the auditory canal must be removed by the physician himself every 24 hours. Should pain be severe, hot, dry applications over the antiseptic dressings or morphine internally may be employed.

Should pus form then we have an aseptic region in which to make an incision. After incision we must continue the antiseptic occlusive dressing in order to avert reinfection.

Otitis externa mycotica is characterized by thimble-

shaped skin casts and black or reddish-yellow spots. Diagnosis is verified by the microscope and the disease subsides readily under treatment with alcohol.

Primary herpes and croupous inflammation are very rare diseases of the auditory canal. *Campbell.*

Operative Treatment of Cerebral Abscess.

BALLANCE (*British Medical Journal*, No. 2112) advises the administration of chloroform in all cases of operation for intra-cranial abscess and withholds strychnin and morphin before the dura mater has been opened. He prefers the flap to the crucial incision.

In exploring for temporo-sphenoidal abscess the trephine should be inserted about seven eighths of an inch above the supra-meatal spine, and the object the operator should have in view should be to expose the lowest part of the middle fossa just external to the tegmen antri and tegmen tympani.

In operating for cerebellar abscess the trephine should be placed upon the bone so that its anterior edge touches the posterior border of the mastoid process—its upper edge should be just below Reid's base line—as in this way the horizontal and vertical portions of the sigmoid sinuses are avoided.

The author regards a sharp-pointed, long and narrow knife as the best instrument for incising the abscess cavity.

No abscess cavity within the brain should be irrigated unless two drainage tubes are so arranged as to insure free escape of fluid. For irrigation purposes normal saline solution is recommended. When the drainage tubes are successfully introduced they should not be disturbed for some time, but simply shortened as the cavity heals from the bottom. *Campbell.*

Furunculosis of the External Auditory Canal Simulating Mastoid Periostitis.

CONNAL. (*British Medical Journal*, No. 2108.) The author calls attention to the anatomic structure of the outer ear, in that the cartilaginous tube is interrupted by two or three transverse fissures—the fissures of Santorini. These transverse clefts are filled in with fibrous tissue, which is continuous with the cellular tissue over the mastoid process. Again the upper part of the cartilaginous tube does not meet, the roof of the canal is filled in with

dense fibrous tissue, which serves the function of closing the upper gap and at the same time unites the cartilaginous tube to the temporal bone. This upper fibrous structure is continuous with the loose cellular tissue around the ear in front, above and behind.

Case I. A boy, aged 8, complained of deafness and great pain in the right ear. Examination showed two furuncles, one on the floor and one on the posterior cartilaginous wall. There was marked swelling over the mastoid, displacing the auricle downward and forward, while the edema involved the eyelids of the same side.

Case II. Was similar in character. The staphylococcus aureus was found in the pus of both cases. *Campbell.*

The Treatment of Chronic Suppurative Inflammation of the Middle Ear.

S. MACCUEEN SMITH, Philadelphia, (*Therapeutic Gazette*, Feb. 15, 1901) confines his article to a consideration of the chronic, non-operative variety of suppurative disease of the tympanic cavity. After considering the diagnosis, and giving directions for an effective examination, the author proceeds to describe a line of treatment applicable to simple, uncomplicated cases. The ear should first be syringed with a warm antiseptic solution, followed by the cleaning out of all secretions from the Eustachian tube by means of Politzer's inflation or Siegle's pneumatic speculum. Sometimes it becomes necessary to resort to the Eustachian catheter or bougie. After drying the ear a few drops of a solution of silver nitrate (gr. 1 to 3 to the ounce) are instilled into the canal, while the head rests on a table, the affected side uppermost. The solution should be induced to pass through the Eustachian tube into the naso-pharynx by directing the patient to open and close the mouth several times or to make repeated efforts at swallowing. When this does not succeed, slight force may be exerted with Siegle's speculum or by drawing the auricle outward and forward, then closing the canal by firm pressure on the tragus with the thumb of the opposite hand at the same time relaxing the hold on the ear. The patient should syringe the ear, once, twice or thrice daily, 3 per cent. boric acid, 1-3 per cent. corrosive sublimate (for children 1-5 per cent.) and a teaspoonful of carbolic acid three parts, with glycerin, 1 part, to a pint of warm

water are suitable for irrigations. Cases that do not progress favorably under the above method should receive the dry treatment, which, however, is not indicated where the perforations are small. After syringing and instillation as before described, finely powdered boric acid alone or with an equal part of iodoform or zinc oxid is insufflated, a small strip of iodoform introduced deeply into the canal, and a pledge of cotton placed externally to catch discharge. The cotton is changed by the patient as often as required. Aside from caustics, actual cautery and surgical means, granulations may be dealt with by the instillation of alcohol, at first diluted one-half with glycerin, gradually increasing the strength as tolerance is established. Perforations centrally or superiorly situated must be enlarged by free incision down to the floor of the canal. In the majority of all cases, the correction of nasopharyngeal disease is quite as essential as treatment of the ear lesion, and most patients also need some general treatment for the relief of systemic disturbances.

Treatment of Chronic Otorrhea.

FRANK ALLPORT, Chicago. (*Jour. A. M. A.*, March 2, 1901). As regards their views upon the treatment of chronic otorrhea, ear specialists are divided into three classes: 1. The ultra-conservatives, who still possess abiding faith in the syringe, insufflations, drugs, and mild surgical procedures, such as the removal of polypi. 2. The conservatives, who try the above treatment for several months, and failing in this, resort to more radical measures. 3. The radicals, who, as soon as chronicity is established, proceed to open the mastoid antrum and tympanum. Among the first class are Ole Bull, Manning, Deutovitch and Samuel Sexton. In the second class are, Shepherd, Black, Stucky, Buck, Gomperz, Burnett, Randall, Reinhard, Politzer, McBride, Lucal, Guye, Grandenigo, Ermann, Barr, Faraci, Buller, Cheatle and White. Among the radicals are Stacke, Schwartz, Macewen, Siebenmann, Jansen, Holmes, Alderton, Lane and Gleason. Although undoubtedly satisfactory results have been accomplished by the methods advocated by the first school, their adherents are becoming smaller each year, and the ranks of the conservatives are being daily recruited from the ultra-conservative column. While it is noted that the

radicals are among our foremost teachers of to-day, the principles of the conservatives for otologists in general are to be adhered to.

The Results of the Surgical Treatment of Inflammation of the Mastoid Process.

E. B. DENCH, New York. (*Jour. A. M. A.*, March 2, 1901.) In 273 cases operated upon, not a single death could be attributed to the operation. The writer makes the point that the mastoid operation in itself is perfectly safe, and is a warrantable procedure in doubtful cases. The mastoid antrum should be entered in every instance and in the usual manner. Closing a portion of the superficial wound with sutures in order to render recovery more rapid is in the writer's experience scarcely advisable.

**A Case of Angelioma of the External Auditory Canal.
Treated by Electricity.**

L. EGGER (*Annales de Laryngologie, Otologie et Rhinologie*, April, 1901) reports a case in a girl, aged 16. The tumor was the size of a pea and seated on the postero-inferior wall of the cartilaginous part of the right canal. It was of a violaceous color in places, yellowish in others. For a month the patient had suffered pain while eating, produced by chewing and referred to the meatus. Pressure behind the angle of the jaw also evoked this pain, and conversely, pressure upon the tumor caused pain in the retro-maxillary region. The positive pole, represented by a needle, was implanted in the growth, and the negative pole, a large plaque, was applied to the left arm. A current of one to three milliamperes was used. After some weeks' treatment the tumor had almost disappeared, only six applications of the current being made during this time.

Trichophytosis of the External Auditory Canal.

BAR (*Annales des Maladies de L'oreilles et du Larynx*, May, 1901.) This article is summed up by the author as follows: (1) The majority of dermatomycoses may invade the external auditory canal and cause parasitic otitides, which must be diagnosed since they are hard to cure. (2) The trichophyton of Malmsten is one of the mucous growths capable of causing such inflammations. My observations are further proof, although the cases are rare. (3) The trichophytic otitides are either acute, sub-acute or chronic,

characterized by a dermatitis, sometimes very severe, by vesicular and suppurative eruptions, though these are sometimes simply erythematous and squamous. (4) Prognosis is good in acute cases; doubtful as to the integrity of the ear in insidious cases. (5) Diagnosis must be chiefly from furuncular otitis, otomycosis, impetiginous and squamous eczema, diffuse acne, the erythemata of syphilitic roseola, and diffuse syphilides. Microscopic examination alone is able to decide the question as to the trichophytic lesions. (6) The treatment follows the general rule of all dermatomycoses; we must remember the etiology, the different phases of the disease, and the anatomy of the part where the lesions lie. Among the parasiticides which may be employed in such cases are solutions of sublimate 1-1000, and naphtholated vaselin 1-10.

Formalin in the Treatment of Otitis Media.

N. G. WARD, of Philadelphia. (*American Medicine*, June 15, 1901.) If the secretions are thick, the ear is syringed with 15 to 30 drops of lysol in a half glass of warm water. In those cases not requiring syringing, and also ten minutes afterward in those that do, 5 or 10 drops of a one per cent. formalin solution is warmed in a spoon and poured into the ear. In obstinate cases alcohol may be added, as,

Formalin	5 drops
Alcohol (95 per cent.)	2 drams
Aqua	q. s. ad 1 ounce

The author claims the following results:

1. Fetid odor quickly disappears.
2. There is an early cessation of the discharge.
3. Protects against the formation of granulations, and small granulations are destroyed by alcoholic solutions.
4. Promotes healing of ulcerated mucous membrane of the external auditory canal.
5. Retards but does not entirely check bone necrosis.

A Case of Laryngeal Stenosis.

I. A. ABT, Chicago. (*Pediatrics*, June 15, 1901.) This case after two days of gradually increasing dyspnea, presented symptoms of well marked laryngeal stenosis. Efforts to introduce the intubation tube proved unsuccessful on account of an obstruction encountered in the larynx. Tracheotomy was performed, followed in 24 hours by death. The autopsy showed the lumen of the larynx greatly di-

minished in size, opened posteriorly and the mucous membrane covered by a smooth, white, glistening adherent membrane. Culture made of secretion found in the larynx by W. J. Class showed the diplococci described by him as the diplococcus scarlatinae.

The Importance of Early Recognition of Ear Trouble in Children.

MACLEOD YEARSLEY (*Pediatrics*, June 1, 1901), deplores the frequency of deafness in children due to failure on the part of the attending physician to recognize the existing ear affection in infancy. Often it is not until long afterward that the real trouble is appreciated, and it is then too late to effect a cure by treatment. Pain in the ear is due to inflammation or non-inflammatory affections. The latter, neuralgic, is rare in children. Loss of weight and elevation of temperature should always demand an examination of the ears. Hartmann regards intestinal disturbances in infants suffering from otitis media as being due to the reabsorption of the toxic poisons from the exudate in the tympanic cavity rather than as a result of infection entering the Eustachian tube during the act of vomiting. To the general practitioner the value of exclusion of ear disease cannot be overestimated.

Superheated Air in the Therapeutics of Chronic Catarrhal Otitis Media.

C. W. HOPKINS, Cleveland (*New York Medical Record*, June 1, 1901), advocates the employment of superheated air in the treatment of chronic catarrhal otitis media in cases which are characterized by ankylosis of the ossicles. A description of one case is given in full, in which the result was good, and in which there is no evidence of recurrence after four years. The author has treated sixty-two characteristic cases of this disease with but four failures, and these occurred in very old people, all of whom had extensive labyrinthine involvement. The apparatus used is a simple room-heater operating either by gas or oil, and having a funnel-shaped top, which sends the hot air through a canvas sleeve to the ear under treatment. The ear is thoroughly cleansed with alcohol, and when perfectly clean, narrow strips of gauze are packed into the ear and a large pad of gauze placed over the ear. The ear is then covered with the canvas sleeve.

and a current of air sent into the canal at a temperature which gradually attains 400° F. The only discomfort that may arise is a severe headache, which is promptly relieved by a dose of codein. The patient is not allowed to leave the office for a half-hour after treatment, and the ear is then tightly packed with warm cotton. The gauze packing within and over the ear takes up all moisture as rapidly as formed, preventing burning and making the application of very high temperatures easy and without discomfort. It is essential that there be sufficient draught to secure perfect combustion, and that there be at least one perforation in the canvas sleeve near the point of contact with the ear, or the dead-air space present will prevent the hot air from reaching the ear.

A Case of Membranous Angina, Due to Streptococci, Followed by Paralysis of the Soft Palate.

M. KESCHNER, New York (*New York Medical Record*, June 1, 1901), reports this case. When first seen, the tonsils, uvula, anterior and posterior pillars of the fauces were covered with a thick, dirty, yellowish-gray, tenacious membrane. A smear from it showed short-chained streptococci, a few staphylococci, no Klebs-Loeffler bacilli; a culture on blood serum showed almost a pure growth of streptococci. In one week the membrane entirely disappeared, the patient in the meantime presenting the classic symptoms and signs of local diphtheria, and giving evidence of profound systemic infection. On the tenth day after the onset of the affection, the patient had difficulty in swallowing, the voice began to acquire a nasal twang, and on the following day liquids regurgitated through the nose on deglutition. The palate was seen to hang down vertically, with distinct loss of sensibility in the palate. There was no evidence of paralysis in any other part of the body. Large doses of strychnin were administered and in ten days improvement was present. The author believes that the paralysis in this case should be ascribed to one or two things, or possibly both: (1) Pressure paralysis from direct action of the inflammatory process. The palatine nerves being contiguous to the inflammatory process of the primary disease, it is probable that they are influenced by the abundant growth of micro-organisms in the false membrane, which often penetrate in-

to the substance of the mucous membrane, and even to the tissue beneath. (2) A neuritis with paralysis, due to the action of a toxin generated by the streptococci, in the same manner as we get a neuritis from the toxins generated by Pfeiffer's or Eberth's bacillus.

Naso Orbital Hyperostosis Due to Distension of the Frontal Sinus.

ROLLET (*Lyon Medicale*, March 31, 1901), believes that mucocele of the frontal sinus results from a chronic inflammatory hypersecretion with retention of mucus, causing over-distension of the cavity of the sinus. In 1896 he showed a case to the Société de Médecine of a youth, aged 18, who had an old-standing hyperostosis obliterating the bridge of the nose, followed by symmetrical orbital tumors, which appeared eight months before operation. On trephining, the sinus was found distended with a mucous fluid. In three other cases of mucous distension the hyperostoses have been noted; in one of them, however, the bony growth was unilateral. Rollet has also found the hyperostoses in two cases of old-standing empyema of the frontal sinus upon which he has operated. The tumors are often fluctuating in parts, and this fact, together with their exact limitation to the naso-orbital region, should suffice to distinguish them from osteomata and syphilitic exostoses. The cases usually occur at the period of adolescence, but the theories of primary bony overgrowth, and primary obstruction of the canal are not as probable explanations of the occurrence as is the theory of primary inflammation. In one of the cases mentioned, pressure caused the tumor to empty itself into the nasal fossa.

Nasal Conditions Observed in the Aged.

B. DOUGLASS, New York (*New York Medical Journal*, May 25, 1901), has noted in his experience that very few people over fifty years of age seek advice for the relief of nasal troubles, while the majority of patients who seek advice, either at the hospital or in private practice, are between the ages of sixteen and forty years. In old age, with its decreasing vitality, the greater liability to disease is not diminished and we should expect the aged to complain of the effects and symptoms of nasal and pharyngeal affections. The reason for the fact that so few old people seek relief from such conditions, the author believes, must be

that, although the lesions are present, they do not cause the symptoms that they give rise to earlier in life. Five cases are cited in which distinct and even marked changes are found upon examination, in none of which did the patient complain of any symptoms. It is also shown that symptoms of discharge, pain, or obstruction are not in proportion to the amount of lesion present, but in certain cases may be entirely absent in the presence of well-developed lesions; that chronic congestive interference with circulation, lymphatic obstruction, and neurotic temperament, are very important elements in nasal cases, and that the cure of the patients who suffer from nasal symptoms often will not result from mere mechanical removal of the lesion present in the nose. The author believes that some of these cases may be explained on the ground that the changes occur so gradually and yet so constantly that the lesions in the nose may be present from internal blood or lymphatic irritation, while active inflammatory symptoms, such as obstruction from paralysis of blood vessels, discharge and pain, may be entirely absent.

The Ocular Expression of Intra-Nasal Lesions.

ROBERT SATTLER (*Jour. A. M. A.*, May 18, 1901), notes that ocular symptoms are not uncommon attendants of focal suppuration of the nasal cavities. Chronic lesions of the anterior region of the middle meatus; the most anterior cells of the ethmoidal labyrinth, etc., have two principal clinical expressions: (1) Persistent injection of the vessels of the ocular conjunctivae, with prominence and distension also of the muscular branches, often accompanied by passive edema of the retro-tarsal folds. Sometimes there is retraction of the upper lid and a peculiar stare. (2) Prolonged and severe suffering from continued effort in reading or close work. It is more pronounced early in the day and wears off; it is of a neuralgic character, and is referred to various points about the orbit. These patients are usually neurasthenics. Cases of chronic suppuration in the inferior meatus, ethmoid cells or sinuses require radical extirpation of the tear-sac by cauterization or excision, with or without removal of the lacrimal gland. Every vestige of fistulous tracts should be removed.

A Brief Note on the Pathology, Diagnosis, and Treatment of Nasal Accessory Sinus Affections.

E. LARUE VANSANT (*Jour. A. M. A.*, May 18, 1901).

makes special mention of affections of the accessory sinuses due to closure of their natural outlets by swelling and thickening of the mucous membrane at the nasal openings, or by small masses of granulations, or even by inspissated mucus obstructing the openings. Such occlusions give rise at times to pathologic changes resulting in sinusitis, or at others, a chronic congestion of the membrane seems to be the result. Headache of a dull, boring character is the most prominent symptom of these affections. The pain is nearly always a localized one, although several localities may be implicated at the same time. It is usually increased when the patient "catches cold." Inspection of the nares will frequently reveal the cause of the obstruction, which, of course, we seek to remove. Whenever possible the natural outlet of the sinus should be opened. Most gratifying results have been obtained in these cases by forcibly syringing the opening with hot air used under pressure. The air is used as hot as the patient can bear it, and under a pressure of from 30-40 pounds. The nasal chambers are thoroughly cocaineized and this followed by application of extract of suprarenal capsule. Acute sinusitis treated in this way, aided by hot water applications externally, low diet, attention to digestion, etc., will usually yield in a few days.

II.—NOSE AND NASO-PHARYNX.

Nitrate of Silver and Other Salts of Silver in the Treatment of Inflammation of the Mucous Membrane of the Upper Respiratory Tract.

E. B. GLEASON, of Philadelphia (*Therapeutic Gazette*, Mar. 15, 1901), says that the old method of treating atrophic rhinitis by insufflation of silver nitrate (10 to 20 grains to the dram of stearate of zinc by the physician once or twice a week, and 1-10 that strength by the patient every three or four hours), can still be employed to advantage. Fused silver nitrate is occasionally used for searing the stumps of polyps or cauterizing exuberant granulations; but solutions of the same salt are rarely employed within the nose. Organic salts of silver, however, in solutions of 20 to 30 grains to the ounce, are unirritating and display well-

marked astringent and bactericidal properties. Painting the lateral walls of the pharynx and tonsils with a 12 1-2 per cent. solution of silver nitrate two or three times a day is one of the best methods of abating acute pharyngitis and tonsilitis. The sedative effects of the application are so marked that the patient is usually able at once to swallow without much discomfort. The posterior wall of the pharynx should then be painted with a solution of protargol, one-third as strong. The same treatment is equally effective in follicular tonsilitis providing the remedy is applied to the tonsillar crypts after they have been freed from pseudomembrane.

The Management of Nasal Catarrh.

CHARLES GRAYSON, of Philadelphia (*Therapeutic Gazette*, Feb. 15, 1901), holds that nasal catarrh is no more than a symptom of some dietetic disorder or of some persistent disturbance of nutrition. Accordingly, he lays the greatest stress upon a critical attention to the patient's personal hygiene and environment. In coryza, rapid and thorough elimination will be the keystone treatment. The routine treatment of popular combinations of opium, belladonna, aconite, etc., is ill-judged. Locally, suprarenal extract with chloretone as a spray is particularly recommended during the stage of acute tumefaction and rhinorrhea. At the time of rapid epithelial desquamation and mucopurulent discharge, a spray of distilled extract of hamamelis, one part to three parts of water, supplies the mild astringency indicated. When active hyperemia has given place to sluggish venous congestion, Boulton's solution affords the proper stimulation. All applications must be preceded by an alkaline cleansing spray, such as Dobell's. In the management of chronic hypertrophic rhinitis, the author deprecates haste in resorting to destructive agents, advising the prior arrest of the underlying catarrhal process. Beginning with hamamelis and Boulton's solution, iodine in increasing strength from 1 to 30 of glycerin is used until the tissues are no longer responsive. Light touches of fused chromic acid are now made to several of the more prominent points of the turbinate, and finally, if cauterization becomes necessary, one or more slender lines may be drawn upon the lower border of the enlarged turbinate for about two-thirds of the length. The fibrin-

ous exudate which follows should be allowed to remain undisturbed until it spontaneously loosens. In the cure of atrophic rhinitis frequent cleansing with physiologic salt solution or other inexpensive preparation by means of a Birmingham douche or rubber ball syringe with flexible tip is the first requisite. Formaldehyde 1-5,000 to 1-500, menthol 1 to 5 per cent., ichthyol 10 to 30 per cent., or iodine from 37 up supplies the indicated stimulation. These remedies should be rubbed into the entire mucous lining by means of a cotton carrier.

Experience With Tracheotomy.

J. ROGERS, JR., New York (*N. Y. Med. Rec.*, April 27, 1901), reports a series of seven cases, of which four were laryngotomies and ten tracheotomies, without a death which can be ascribed to the operation. Cocaine should always be used when the patient is controllable; but children or patients who cannot be kept quiet require chloroform, and in no instance did it cause trouble. Most of these patients suffered division of the cricoid cartilage, and experience seems to demonstrate that such an operation, if the canula has to be worn for any length of time, invariably leads to subsequent bad cicatricial contraction, which can be cured only by prolonged intubation. It can, however, be permanently overcome in every instance. Laryngotomy, except for tumor, is useless. The high opening of the respiratory passages, on the other hand, has some distinct elements of safety in its performance. A low tracheotomy presents only the doubtful advantage of a less probability of subsequent stricture above a long-retained canula. If the stenosis is not chronic, and there is hope of a speedy cure by a simple tracheotomy and the wearing of a canula a few weeks, and also if a careful dissection is possible, the low operation is preferable. In general, and especially for emergencies and for chronic stenosis, which must subsequently be treated by intubation, the high operation is safer and better than the low. Granulations, as a complication, were not encountered in any of the cases reported, and in several of them the canula was worn for long periods. Granulations develop at the upper angle of a high tracheotomy wound, but do not in themselves give trouble. They are merely a prelude to the subsequent cicatrix, which draws the trachea to-

gether in a dome-shaped pouch above the canula, and this contraction seems to be the worse the nearer the wound is to the vocal cords.

Acquired Syphilis of the Nose and Pharynx.

C. A. PARKER (*Lancet*, Jan. 26, 1901), treats of this subject under the separate heads of nose and pharynx. Primary syphilis of the nose is very rare. Secondary syphilis manifests itself as (1) coryza, (2) mucous patches, (3) rhinitis erythematosa and rhinitis papulosa, (4) superficial ulcerations. Tertiary syphilis appears as (1) gummata, (2) superficial ulcerations, (3) deep ulceration and necrosis, (4) scars, adhesions and deformities. As complications are found middle-ear troubles, involvement of accessory nasal sinuses and pharyngitis, etc. As for the pharynx, the primary lesion is fairly frequent and is usually located on a tonsil. Secondary syphilis arises as erythema, mucous patches and superficial ulcerations. The tertiary lesions are (1) gummata, circumscribed and diffuse, (2) ulcerations, (3) scars, contractions and adhesions. The adhesions are usually of the following forms: (a) Adhesion of the posterior pillar of the fauces to the posterior pharyngeal wall, causing a dragging of the uvula and palate to the affected side. (b) Unilateral adhesion of the palate to the posterior pharyngeal wall. (c) Adhesion of almost the entire palate to the posterior pharyngeal wall. (d) Total atresia. (e) Adhesion between the base of the tongue and the posterior pharyngeal wall. (f) Adhesion of the velum to the base of the tongue. As treatment is recommended iodine or potassium internally, and mercurial inunctions, with gargles.

Supraorbital Headache Due to Eye Strain. Nasal Neurosis.

SAMUEL G. DABNEY, Louisville, Ky. (*Pediatrics*, Feb. 15, 1901.) The first case presented is a child, 11 years of age, complaining of severe supra-orbital headaches, as a result of eye strain, due to astigmatism, as it most frequently is. The nervous strain involved in the effort of the ciliary muscle acting upon the crystalline lens to so change its curvature as to compensate for the corneal error, and thus to give perfect vision, provided the error is not too great, produces headache.

Another patient complained of a thin, watery discharge from the nose, with frequent attacks of sneezing. He.

like many of these cases, presented simply a turgescence of the membrane lining the turbinated tissue without any hypertrophy. This condition is really a neurosis, for which the following is very efficacious:

Arsenic acid.....1 grain.
 Sulphate of strychnin.....2/3 gr.
 Ext. of belladonna.....
 Phosphide of zinca.a. 4 gr.
 Extract of gentian q. s. ut ft. pil. No. xx.

The Correction of the Deviations of the Nasal Septum.

J. O. ROE, Rochester (*N. Y. Med. Journal*, April 13, 1901), discusses chiefly his own method of correction and the principles on which it is based. The instrument used is a fenestrated forceps, one blade of which is made in the form of an ovate ring, and the other in the form of a long, narrow, rounded blade, which fits loosely into the former, so that the septum is not unduly compressed or lacerated. The handle is sufficiently long so that the frenum of the nostril is not compressed when the force of the blade is applied to the septum. The male blade is inserted into the nostril on the convex side of the deflection and the ring blade on the opposite side, when, by closing the blades, the deflected portion is crowded into and partly through the opening far enough to forcibly indent the central portion and fracture it without disturbing or bringing a strain on other portions of the septum. In straightening a deviated septum, no matter if the deflection is confined to the cartilaginous portion alone, it is of the utmost importance that the bone at, or adjacent to, the attachment of the cartilage be fractured. In this way the change in the direction of the attachment of the cartilage is made in the bone, so that it permanently holds the cartilage in its new position. This method is also of service in cases of moderate deviations of the cartilaginous portion alone, by simply fracturing the adjacent part of the cartilage into the fenestrated blade. With this instrument also, the cartilage can usually be fractured sufficiently to overcome the elasticity without the necessity of incising or lacerating it. The most satisfactory support for holding the septum in place is a plug made of sterilized cotton or gauze wrapped around a small metal plate to give it firmness,

and of the requisite size to fill the nostril completely. This is placed in the previously occluded nostril or the convex side toward which the septum has been deflected. The author further discusses the method of incising the cartilage to provide for redundancy, and the details of the operation for straightening the septum.

"Cold in the Head:" How it May be Avoided and How to Treat it.

GEO. C. STOUT (*Therapeutic Gazette*, Jan. 15, 1901), presents a readable article on the etiology, pathology, symptoms, prophylaxis and treatment of acute coryza. The chief underlying cause is a depressed state of the nervous system which results in sluggishness of the heat-producing centers. Rational clothing, avoidance of draughts, care of the digestive functions, and maintenance of nervous tone are the chief element of prophylactic care. Too much clothing is more apt to be worn than too little. As a preventive measure, a brisk dry massage of the body and limbs, morning and evening, is excellent. After an attack has started, the bowels are to be regulated by a saline cathartic, nerve tone increased by strychnin and excessive nasal discharge restricted by the following tablet:

R Morph. sulph., gr. 1-32:

Strych. sulph., gr. 1-95:

Atropinæ sulph., gr. 1-150:

Acid. arsen., gr. 1-100:

Aconitin, gr. 1-1,000.

M Sig.: One to three daily according to symptoms.

Once daily local treatment is given by the physician with great gentleness. The nose is first thoroughly sprayed with an alkaline antiseptic solution, then by a 1 per cent. solution of cocain containing 2 grains of boric acid to the fluid ounce. After about five minutes is used a 2 per cent. solution of antipyrian followed in 5 minutes more by a very light insufflation of calomel and finally by a protective spray of 1 per cent. menthol in liquid vaselin.

Aerothermic Treatment in Nasal Affections.

L. LICHTWIZ (*Annales de Laryngologie Otologie et Rhinologie*, April, 1901), says that the treatment of certain nasal affections such as spasmodic rhinitis, acute and subacute coryzas, hypertrophic rhinitis, etc., may be divided into two classes; surgical, consisting of cauterizations, partial and complete turbinectomy, and medical, consisting of nas-

al and retronasal douches, fumigations, powders, ointments, etc. The first he considers too severe in proportion to the lesion, and the second as inefficacious, even dangerous sometimes in the case of the nasal douche. He has therefore begun using a current of air, heated to 70 to 90 C., in the nasal cavity. The warm air generator modeled after that of Gautier and Larat, is a copper coil heated by a Bunsen burner. To this is attached a flexible tube with a canula tip, by which pressure and temperature can be regulated by a reservoir containing air compressed to 120 atmospheres by means of an electric pump. From his experience he concludes that this method ought to be employed in three classes of cases:

1. The affections grouped under the generic term of spasmodic rhinitis.
2. Acute and sub-acute rhinitis—with or without involvement of the sinuses.
3. Hypertrophic rhinitis with obstruction.

Clinical reports of a case of each affection are appended. The air is applied for about three minutes at each sitting. Other diseases in which this treatment is indicated are lupus of the mucosa, rebellious epistaxis, torpid ulcers and certain maxillary sinusites.

A Nasal Condition Affecting the Ocular Muscles.

The *Medical News*, July 27, publishes a paper on this subject by DR. HEBER N. HOOPLE, read at the 7th annual meeting of the American Laryngological, Rhinological and Otological Society held in May at the New York Academy of Medicine. His thesis is "that faulty pressure within the nose can cause asthenopia of both the ciliary and external ocular muscles," when such pressure exists in Mackenzie's "reflex area," affecting chiefly the middle turbinate body, the adjacent septum and the ethmoid cells when compressed by simple mechanical means (such as spurs or displacement), or by swelling, the result of inflammatory action. The hemicrania found in these cases is dependent, as shown by Snow, Loeb and others cited, on the same condition of pressure, but is not itself a symptom of asthenopia. The two are concomitant, dependent on disturbance of the same sensorimotor branches of the fifth nerve. Reference is made to cases reported by Maxwell and others, in which accommodative asthenopia was cleared up by treatment of the nasal fault;

also to cases reported by De Schweinitz and Ziem, in which muscular asthenopia was found to be dependent on pathologic conditions in the same area, e. g., the presence of sinusitis, and which disappeared when the pathologic conditions were removed.

The author cites six cases belonging to a restricted type of patient, named by Gradle the *normal* asthenope, and rests his thesis on this type alone, excluding cases of the less conclusive *neurasthenopic* type.

Case V shows changes in behavior of both ciliary and external ocular muscles brought about by mere mechanical pressure in divulsion of tightly pressing middle turbinates. Cases VI, VII and VIII record changes in same muscles tested thoroughly before and after treatment by ablation of a tightly compressed middle turbinate. In these cases, coincidental with the removal of the symptoms of asthenopia, there was the disappearance of the accompanying hemicrania, the symptom most in evidence to the patients.

The Influence of Mouth-Breathing upon the Dental Arch.

M. D. LEDERMAN, New York (*New York Medical Journal*, July 13, 1901), states that during the early period of childhood our efforts should be directed toward remedying mouth-breathing, in order to avoid the evil effects which may result to the growing osseous structures of the oral cavity and neighboring tissues. Nasal and post-nasal obstruction are the most frequent factors that bring about the mouth-breathing habit. If such a condition is found by the dentist, to whom a child is often brought for an increasing deformity of the palate, he should advise the removal of the obstruction as well as suggesting some form of mechanical aid to rectify the existing deformity. The untoward results are produced by the faultily directed atmospheric and muscular pressure. The temporary teeth rarely deviate from their proper position in the alveolar arch, but irregularity of arrangement in the permanent set is not an uncommon occurrence. The most common form of such displacement is caused by the presence of temporary teeth beyond the time of shedding, owing to some disturbance in the process of absorption. This condition is frequently secondary to some defect in the general system, and the evil influences of mouth-breathing

are so common in early life, that attention to the local affection in the pharynx is emphatically indicated. When the mouth is closed, the tongue rests against the teeth, the alveolar processes and the palate, thus equalizing the pressure of the cheeks against the lateral portion of the maxilla. This provision of nature loses its influence when the mouth is kept open. Thumb-sucking is also a factor which is suggested as an exciting cause of the dome-shaped palate. To avoid such malformation, prophylactic measures must be employed at an early period, and the exciting factor removed in the early years of childhood.

III.—LARYNX.

Contribution to the Study of Hereditary Syphilis of the Larynx.

AUBIN. (*Bulletin de Laryngologie, Otologie et Rhinologie*, Mar. 30, 1901.) Laryngeal hereditary syphilis is more frequent than generally believed.

Frequently laryngeal affections persist and return in children, and simulate chronic tracheo-laryngitis, laryngismus stridulus, edema of the larynx, while they are only laryngeal lesions of hereditary syphilis (ulcerating gummi, etc.), whose nature is usually misunderstood. Diagnosis of these lesions is possible by a single laryngeal examination.

The presence on the patient's body of specific lesions or dystrophic stigmata is an element of great advantage in doubtful cases.

These laryngopathies are of grave prognosis, especially since they affect the functioning of the organ, and because they give rise to progressive stenoses which may lead to fatal results.

They are remarkably influenced by specific treatment (iodin in large doses, hypodermic injections of the biniodide of mercury).

The cicatricial contractions justify surgical treatment.

Contribution to the Study of Laryngoceles.

PELLETIER. (*Bulletin de Laryngologie, Otologie et Rhinologie*, March 30, 1901.) Laryngoceles are tumors filled with air, lying in the larynx. They are divisible into two

principal groups: (1) Laryngoceles unaccompanied by solution of continuity of the laryngeal walls. They are usually intralaryngeal. Their cause is a dilation of normal or abnormal cavities lying in relation to the larynx.

Of these there are two observations by Carrey, successfully treated by reposition and compression.

Abnormal cavities of congenital origin give two types of laryngoceles.

The first corresponds to the "ventricular laryngocele" of Virchow. It is due to a dilatation of the prolongation of Morgagni's ventricle. The tumor is then intralaryngeal, and situated behind the membrana hyo-thyroideus.

It is visible by laryngoscopic examination even without an external manifestation and the cyst is little developed.

The second corresponds to the description of Bennet and Gruber. The diverticula of the distended ventricles of Morgagni form two tumors separated by a retracted portion. One is intralaryngeal, the other extra-laryngeal and lies in front of the membrane thyro-hyoideus.

In short, it is the intermediate type between the laryngoceles without and laryngoceles with solution of continuity of the laryngeal walls.

The tumors are more or less rounded, without adherence to the skin. They are usually reducible by pressure.

Functional troubles of the voice, and especially respiration, vary with the volume of the tumor. That it is which calls for surgical intervention. Compression is only a palliative means, without permanent action on the intralaryngeal tumor. We ought therefore ablate both extra and intralaryngeal tumors, which can be done by tracheotomy.

(2) Laryngoceles resulting from a solution of continuity of the laryngeal wall. They are usually extra-laryngeal. In one variety the solution of continuity would be incomplete. The laryngeal mucosa would be intact and would form a hernia through the solution of cartilaginous continuity. The existence of this variety has never been shown.

In a second variety the solution of continuity is complete. It can be due to a congenital lesion of the larynx, a traumatism or an ulceration of the larynx.

For the laryngocele to be produced under such conditions it is necessary that the aponeuroses situated against the larynx be intact. These limit the walls of the pocket and prevent the air from passing from pocket to pocket in the cellular tissue of the neck.

These laryngoceles form round and smooth tumors of variable size. They are adherent to the deeper parts, although the skin is movable on their surface. They are sonorous on percussion; their reducibility is inconstant, due without doubt to the narrowness of the laryngeal fissure.

The treatment varies with the cause. In laryngoceles due to a tuberculous ulceration of the larynx, it would be prudent to resort to a palliative treatment, to avoid everything which aggravates the laryngocele and to exert moderate compression on the tumor.

Throat Paralysis in a Case of Locomotor Ataxia of an Irregular Form.

JOHN EDWIN RHODES. Chicago (*Jour. A. M. A.*, June 22, 1901), reports a case occurring in a male railroad employe, 35 years of age. The complete diagnosis was: An ascending sclerosis of locomotor ataxia causing ptosis of the right eyelid and divergent squint of the right eye, paralysis of the left half of the palate, and abductor paralysis of the right vocal cord. On examination of the larynx the right vocal cord was stationary in the median line, there being a paralysis of the posterior crico-arytenoid on the right side—the abductor of the vocal cord. All other conditions of the throat were normal.

In this patient, the previous history was good, no bad habits or history of specific trouble. He had suffered from sharp lancinating pains in the lower extremities, habitual constipation, and frequent micturition that could not be well controlled. He complained of a slight tickling sensation in the larynx, which occasionally excited cough.

IV.—MISCELLANEOUS.

Contribution to the Study of Hysterical Aphasia.

MISS G. ARON. (*Bulletin de Laryngologie, Otologie, et Rhinologie*, March 3, 1901.) Hysterical aphasia really ex-

ists and assumes the same forms as aphasia of an organic origin. It sometimes takes the form of a special kind of aphasia such as pure verbal blindness, verbal deafness, etc.

Its beginning is abrupt, as is its disappearance, and its duration is short; consequently the intelligence remains intact.

The disease recurs, and co-exists with stigmata of hysteria. As to its pathogeny there are numerous hypotheses among which the most recent is that of engorgement of the cerebral centers.

Prognosis is good, cure may come without treatment and spontaneously, but is sometimes assisted by reeducation in speech.

The Role of the Nasal Fossæ in the Prophylaxis and Treatment of Pulmonary Tuberculosis.

DR. MAURICE MIGNON, Nice. (British Council on Tuberculosis.) When we consider the question of the prophylaxis of tuberculosis, we must recognize the fact that contagion takes place chiefly through the air. Air is the vehicle by which the microbes invade the organism far more frequently than foods, which can be sterilised by cooking. When the air is still infective, in spite of the use of spittoons, in spite of the practice of disinfections, in spite of every precaution intended to prevent the spread of the disease, the nasal fossæ are still capable of arresting the danger that threatens us. The microbes that enter with the air are, in a large measure, arrested by the cilia of the nasal vestibule and by the very extensive and very irregular surface of the mucous membrane. One may thus recognize the bactericidal function of the nasal mucus, although it has been questioned by some authors. Clinical experience teaches, indeed, that the nasal fossæ are much more resistant to tuberculosis than the rest of the respiratory tract, and even than the bucco-pharyngeal cavity. Insufficient nasal permeability (nasal obstruction from malformations of the septal ridges, from hypertrophic or congestive rhinitis, from cysts, vegetations, adenoids, etc.), should therefore be reckoned among the dangers of tuberculous infection.

From the point of view of treatment the state of the nasal fossæ is of equal importance. As the nose allows more air to enter than the mouth, nasal insufficiency results in

deficient oxidation of the blood, and everyone knows how necessary oxygen is to the tuberculous. Entering by the mouth the air brings with it harmful microbes, which, accompanied by dust, favor the malady. Moreover, this air, insufficient and injurious, is unmodified, either in temperature or in pressure; it provokes bucco-pharyngeal, laryngeal and tracheo-bronchial inflammations which impede the action of treatment.

It is therefore absolutely necessary that we should be satisfied that patients presenting themselves for examination (especially those disposed to tuberculosis, and those who are themselves tuberculous) are not suffering from any form of nasal insufficiency. If any defect is present it should be remedied, and we should enjoin the patients to breathe solely by the nose as soon as they are able, for this habit often plays a part. Instruction on the latter point should be included in the general advice which one makes a point of disseminating amongst all classes of the population.

The Preponderance of Male Stammerers Over Females.

D. GREEN, New York (*N. Y. Med. Journal*, April 13, 1901), presents a table showing the results of an examination of 256 adult stammerers, 229 of which were males and 27 females. The classification of the various forms of stammering has been made to depend upon the particular region of the vocal tract in which the faulty action causing the speech defect takes place. This table shows that faulty inspiration was the cause of stammering in about 61 per cent. in males and only 11 per cent. in the females. The most prolific source of stammering among men is a tendency to misdirected effort in the diaphragm, a condition which the table shows is rarely found among women. This is quite natural, for in the male ordinary, quiet respiration is effected almost exclusively by the activity of the diaphragm; but, in speaking, a more considerable emptying of the quantity of air in the lungs must take place, and this can be effected only through the combined processes of diaphragmatic and costal breathing. In females, costal breathing is the habitual mode of respiration, hence their lungs are generally well supplied with the quantity of air which is necessary for speaking purposes, and cases of stammering caused by deficient inspiration

accounts for the great preponderance of male stammerers over females.

Treatment of Laryngeal Tuberculosis at the Montefiore Home for Chronic Invalids.

W. FREUDENTHAL, New York (*Jour. A. M.* 41., March 16, 1901), states that to-day it is a pleasure to treat laryngeal tuberculosis, owing to the very gratifying results obtained by his method. The symptoms of pretuberculous laryngitis are anemia and hyperemia and swelling; and the strictest differentiation between the medicaments after this point has been decided assures the possibility of success. In the anemic stage, insufflation of zinc sozoiodol with sugar of milk, with applications of nitrate of silver, 3 per cent. solution, liquor ferri sesquichlor (1-30) and balsam of Peru, with spiritus vini rectificatus, are used. The application of stronger astringents is not recommended, for fear of exciting not only a hyperemia, but even an edema. In the hyperemic stage, creosote 5, spir. vini 10, glycerin 50, is applied. Tannin, alum and other astringments have also been used with benefit. In treating the advanced stages, lactic acid is not advocated on account of the severe pain it causes, and in its stead menthol-orthoform-emulsion is used in the following manner: The larynx is cleansed, if necessary, with a spray or swab. Three to six grains of saccharated suprarenal gland is insufflated into the larynx, and within one-half to one minute a pleasing cooling sensation is produced. Then the following emulsion is applied:

Menthol.....	1, 5, 10 or 15
Ol. amygdal. dule.....	30
Vitelli ovorum.....	25
Orthoformi	12.5
Aquae	100

Menthol, 1 per cent. is given at first and as rapidly increased as the toleration of the patient permits to 10, rarely to 15. To avoid the burning pain of this drug, the preliminary anesthesia is induced by suprarenal gland. Regarding surgical interference (curettage), in 29 cases 18 were not improved, in 7 slow amelioration occurred, and in 4 almost immediate improvement took place, and the final conclusion of the writer is that his patients were just

as well, perhaps better off without operation. In very advanced cases, where applications, on account of severe pain, are out of the question, olive oil (a glassful before breakfast) often produces most gratifying results. The introduction of heroin has been a decided advance in the treatment of cough in phthisical cases.

Notes on the Treatment of Diphtheria.

W. L. SOMERSET, New York (*N. Y. Med. Jour.*, April 20, 1901), bases his remarks on the treatment of diphtheria on the methods of the New York City hospitals. The evidence in favor of any of the specifics, mercury, chlorate of potassium, tincture of the chlorid of iron, alcohol, etc., prior to antitoxin, was very incomplete and unsatisfactory, and all of them have practically been discontinued. The use of antitoxin became general in 1895. From twenty-five hundred to 4,000 units are, in the author's opinion, the most generally accepted limits at the present time. With regard to local treatment, sprays and insufflations have been practically abandoned, and irrigations remain as the accepted method of local treatment. By this method of treatment, the attempt is made to cleanse the infected area, and to lessen pain. Hot irrigations also afford the best means of relieving the intense pain frequently present when the throat is much swollen by reason of the great amount of accompanying non-diphtheritic inflammation. Either a fountain or a handball syringe is necessary. The nozzles are best made of hard rubber. The nasal tip should fit the nostril tightly, so that the fluid introduced into one nostril shall escape from the other. The tip for the throat should be of sufficient length so that, after a preliminary washing of the mouth, it may be pushed well back, act as a tongue-depressor, and render it possible to wash the pharynx. After the trial of a number of different fluids, salt water was finally selected. The solution is made up to contain a teaspoonful to the quart; the temperature most frequently used is 110 degrees F. As to the frequency of irrigation, each is a rule unto itself. Some patients are benefitted and relieved by being irrigated every hour when awake; more frequently three or four times a day is often enough. Medicated steam is still in use, and when properly applied, is undoubtedly beneficial in some cases. Reference is made also to the

indications when the naso-pharynx, the larynx and the eye are the sites of the diphtheritic deposits.

Rectal Feeding in Throat Diseases.

A. C. BARDES, New York (*N. Y. Med. Jour.*, April 6, 1901), believes that nourishment and stimulation per rectum are applicable in all cases in which swallowing is difficult or painful, or in which an operation has been performed upon the throat and the wound is to be kept quiet. A person can be fed by the rectum solely for two or three weeks. It is of particular service in diphtheria, in tuberculosis of the throat, and after staphylorrhaphy, while in cases of circumtonsillar abscess, after the removal of tonsils or adenoids, or in cancer of the tongue or throat rectal feeding will be of great assistance. The quantity of food administered with each injection should range from one to six ounces, according to the age of the patient, and the enemata should not be given oftener than once in three or four hours. The composition of the enemata should be altered occasionally. When the rectum is irritable, from two to ten drops of laudanum or about fifteen grains of corn starch may be added to the enema. Whiskey or brandy may be incorporated with the enema when the administration of a stimulant is required. The advantages claimed for rectal feeding are as follows: 1. The throat, being at rest, is not irritated. 2. Struggling in children is obviated. 3. The progress of disease is shortened. 4. There is no danger of food entering the larynx. 5. The physician is able to give such food and stimulation as he wishes to give. 6. The food is not bolted, as it is when swallowing is painful.

SEVENTH ANNUAL MEETING OF THE AMERICAN
LARYNGOLOGICAL, RHINOLOGICAL AND
OTOLOGICAL SOCIETY.

A Case of Corrected and Internal Deformity of the Nose.

DR. T. PASSMORE BERENS, of New York City, presented a patient together with two photographs taken before the operation on the septum. The young man had come to him with a history of an injury received to the nose in early childhood. The bridge of the nose was very large, much elevated and deflected to the left, forming a large, disfiguring hump. The septum was deflected to the left, and adherent, causing almost complete occlusion of the nares. The nasal bones and part of the cartilages were laid bare, and the bony hump divided with a chisel. The parts were closed, and the wound dressed. The operation was in part a cutting, and in part a crushing operation, and had been done on March 5, 1901. Healing had been rapid.

DR. OTTO J. STEIN, of Chicago, said he understood a forceps had been used to break loose the nasal bones from their attachment to the frontal and superior maxilla. He had himself done this operation several times, and on the last two occasions had experienced great difficulty in breaking the bones loose from the superior maxilla. The condition brought about by the blows had been so severe that it did not seem to him that its repetition was warranted.

Thrombus of the Lateral Sinus.

DR. THOMAS J. HARRIS, of New York City, presented a case of thrombus of the lateral sinus. The patient was a man, about twenty-three years of age, who had been admitted to the hospital on April 3, with a history of pain and otorrhea for about one week, and a swelling in the neck. There was no elevation of temperature at the time, and he complained only of frontal headache. A few days later an exploratory incision was thought to be necessary, and accordingly the mastoid cells had been opened, but nothing had been found. On going into the sinus a long clot had been found and removed. From

that time to April 17 he had done well, but on a return of the symptoms the incision had been extended to the clavicle, and the jugular vein opened. No clot had been found until the facial vein had been reached. The man had been very ill for several days afterward, and had had a metastatic pneumonia. At no time had there been any tenderness over the mastoid, and no pus had been found in this region. The pain complained of had been almost wholly over the frontal lobe of the brain. The symptomatology of this case had been quite obscure.

DR. M. D. LEDERMAN, of New York City, said that one must not expect to find the classical symptoms either in sinus or mastoid disease. In one of his own cases there had been a running ear for ten weeks, but none of the classical symptoms of mastoiditis. The usual mastoid operation had been done, and no disease of the sinus found. Paracentesis had resulted in the withdrawal of blood. In his opinion, such a procedure was not sufficient; it was better to make a bacteriologic examination in addition. After a week or two in this case the sinus had been exposed and jugular thrombosis found. The vessels had been ligated near the clavicle, and opened but no blood found. Owing to the very bad condition of the patient, the complete operation had not been done. The patient had ultimately died. In another case there had been acute involvement of the mastoid, in a woman who had had one child. The sinus was curetted to within one inch and a half of the torcula, and jugular exposed. It was tied close to the clavicle and opened, and turbid fluid was found. About ten days afterward there had been an elevation of temperature and a swelling of the neck. On cutting down upon this, no pus was found, but an inflammation of the veins existed. Under a wet dressing the patient had made a good recovery.

DR. WALTER B. JOHNSON, of Paterson, N. J., said that he had had a similar case to the one presented by Dr. Harris. The patient had presented all the symptoms of homesickness, and in consequence she had been sent home. She had temporarily improved. When the true nature of the case had been discovered operation on the jugular had been advised, but had been declined and the patient had died.

DR. HARRIS said that it should always be remembered that it was not necessary for the patient to have a decided chill before one felt justified in making a diagnosis of involvement of the sinus. In the case under discussion there had been no chill, but there had twice been chilly sensations. With high temperature and chilly sensations one was warranted in making an exploration.

The Nature of Cancer.

DR. HENRY L. WAGNER, of San Francisco, presented drawings illustrative of the work done by an investigator in his city on the nature of cancer. About two months ago this gentleman, Dr. Eisen, had become infected with cancer, and was now practically in a dying condition. His important and interesting research had been completed about two years ago. This gentleman had even studied the development of the spores in his own case. Upward of 70 cases of carcinoma had been investigated in this way, and the results would be eventually published in detail in book form.

Traumatic Dislocation of the Left Arycartilage.

DR. H. L. WAGNER was the author of this paper. He said that such dislocation was very rare; he had only been able to find one such case on record. His patient was an old man, about seventy years old, who had been struck in the throat by the fist of a drunken soldier. The patient complained of great pain on deglutition, but there was no bloody expectoration. Under an alkaline spray and an ice compress the swelling rapidly diminished, and examination then revealed dislocation of the left arytenoid cartilage with fixation between respiration and phonation alone. There was no fracture of the cartilages.

A Congenital Deformity of Both Auricles.

DR. WAGNER also presented a photograph of this condition. The patient was a boy of five. There was an absence of the inner part of the upper helix and great overdevelopment of the antihelix. The deformity was the result of an arrest of development occurring during the second and third months of intrauterine life.

DR. W. FREUDENTHAL, of New York City, said that he had seen several cases in which he had suspected fracture of the cartilages and in them crepitation had been elicited,

but in these persons as well as in others this crepitation was normal.

DR. WAGNER said that in his case there had been crepitation at first, but it had very quickly disappeared, whereas in cases of infraction or fracture that he had observed this crepitation had existed much longer. He was of the opinion that when the aryccartilage was slightly separated from the cricoid joint there would be crepitation.

Disease of the Upper Air Passage in Relation to the Mental Development.

DR. L. F. PAGE, of Indianapolis, Ind., read this paper. He said that the intimate relation between the blood spaces of the mucous membrane and the subarachnoid space had been thoroughly demonstrated, and an equally intimate relation exists between certain venous regions of the nose and the interior of the skull. The capacity of the lymphatics of this region for absorbing toxins was often observed in diphtheria, and impure blood was one of the causes of interference with mental development.

Engorgement of the erectile tissues and the irregularities of the nasal cavities often interfere with drainage, and so give rise to contamination of the blood. A study of the anatomy of the nasal fossæ showed plainly that this region should be a fertile source of reflex disturbance, and it was not difficult to imagine that such irritation might exert an important influence on the psychologic function of the brain. A bony spicule or an enlarged turbinate, by constant pressure and irritation, may cause exhaustion of its special centre, and gradually and secondarily affect the whole nervous system. Constant overstimulation meant exhaustion sooner or later. The author said that he had been often impressed by the mental defects exhibited by children with adenoids and enlarged tonsils, and the mental improvement which followed the removal of these pathologic conditions.

DR. PRICE BROWN, of Toronto, Can., said that the effect of the presence of adenoids or other hypertrophic lesions in retarding the mental development was very evident, and the fact should be noted and emphasized. Two children had been recently brought to him with the statement that while they had been bright and intelligent in infancy, they were becoming more and more dull and stupid. Ex-

amination showed the post-pharynx obstructed by adenoids, and the younger child had never breathed through his nose. These facts should actuate the physician to inform the parents of dull children regarding the reasons for such lack of mental development.

DR. GEORGE T. RICHARDS, of Fall River, Mass., said that he had recently seen a boy who had become so dull that he had refused to go to school any longer because he realized how backward he was. On restoring nasal respiration the child's mental condition had rapidly improved.

DR. E. E. HOLT, of Portland, Me., said that this brought up the necessity for having a school physician who should not be in general practice, and who should be usually well qualified and broadly educated. He thought every member should use his influence toward securing proper medical supervision at school. He also thought that the records which would accumulate as a result of such a system would prove most valuable from a sociologic point of view.

DR. SARGENT F. SNOW, of Syracuse, N. Y., said that the general practitioner should be impressed with the fact that not only did adenoids exert a bad influence on the general development, but that good ventilation of the olfactory region must be secured. Mention was made of a boy who was becoming dull mentally, yet examination showed only occlusion of the middle and superior air passages. General medical treatment and simple local applications had speedily changed the whole complexion of the case. He had a case of epilepsy which was undoubtedly due to intranasal pressure.

DR. FRED. C. COBB, of Boston, Mass., thought it was most important for the specialist to ascertain just what pathologic states give rise to reflex disorders, and what cases of this kind can be cured.

DR. JAMES F. MCCAW, of Watertown, N. Y., cited a case in which he questioned if the apparent mental deficiency were not due to deafness. He was of opinion that the mental deficiency found in children with adenoids was often not directly the result of the adenoids but of the associated impairment of hearing.

DR. L. A. COFFIN, of New York City, also thought the dullness was often apparent rather than real. There was frequently a loss of self-confidence, which was restored

by operation. The main facture seemed to be a lack of perception. The child with the stuffed-up nose was engrossed with himself, and could not give attention to his teacher without the exercise of more self-control than he could exert.

DR. FRED. T. ROGERS, of Providence, R. I., said that for some years it had been the custom in Providence to place the backward children of the city in special schools. At one time he had examined the children in one school, and about 70 per cent. of them had been found to be suffering from obstruction of respiration or from some high error of refraction. He personally knew of certain of these children who had been taken out of these special schools and returned to the ordinary schools because of the mental improvement resulting from treatment directed to these defects.

DR. ALVA B. ABRAMS, of Hartford, Conn., said that he found patients and physicians seemed to derive much comfort from the statement unfortunately often found in the text-books that adenoids and similar growths shrink up and give rise to less trouble in later life. While, of course, this was the result exceptionally, it would be better if physicians would forget that this happy termination ever occurs.

DR. PAGE, in closing, said that he had met with several cases in which children who had been late in talking had very soon acquired the power of speech after an operation for the removal of adenoids, and from this he inferred that the presence of adenoids sometimes interferes with the development of the speech centre.

Tubercular and Syphilitic Granulomata of the Nose.

DR. WILLIAM LINCOLN, of Cleveland, O., was the author of this paper. In it he reported two cases of granulomata of the nose, presenting similar appearances, though one was tuberculous and the other syphilitic in nature. The first case was that of a woman of forty-six who had contracted syphilis five years previously. Six months before coming under observation obstruction of the right nostril had begun. Examination showed a rounded, non-pedunculated tumor springing from the surrounding healthy mucosa. It bled easily and was not tender. On the hard palate were several characteristic syphilitic ulcers.

Microscopic examination showed typical tubercular tissue with giant cells. Physical examination of the chest was negative. The patient was put on iodid in increasing doses. Within three weeks the ulcers had healed and the tumor had markedly diminished. A month later the granuloma had completely disappeared. The second case was that of a woman, forty-five years of age, who had lost flesh and had night sweats. For some months she had been troubled by nasal obstruction. Examination showed a pale, red, sessile mass on the cartilaginous septum without ulceration. There was no history of syphilis. Microscopic examination showed the ordinary structure of tubercular granuloma with giant cells, but no tubercle bacilli could be found. A course of treatment with mercury and iodid had no effect, and accordingly the growth was curetted. About eight months later the patient returned with a similar condition in the other nostril, and in a similar site. The patient then gave evidence of tuberculosis of the lungs. It was possible to construe this case as one of primary tuberculosis of the nose. An interesting deduction was that the diagnosis could be made better by the consideration of the results of physical examination and treatment than by dependence upon the histologic examination. The treatment of tubercular granulomata should be by thorough curettage.

Some Observations Upon the Diagnosis and Treatment of Specific Disease of the Naso-Pharynx.

DR. P. S. DONELLAN, of Philadelphia, read this paper. He said that he had recently seen a case of chancre on the posterior arch of the palate, the diagnosis being evident from the appearance, and being confirmed by the subsequent course of the disease. There was nothing in the history to point to the manner in which infection had taken place. Ulcerations of the pharynx were common, and were associated with painful deglutition and obstruction of respiration, and the usual symptoms of "catarrh," the diagnosis usually made by the general practitioner after a superficial examination. He had been impressed with the importance of making a routine thorough examination of the naso-pharynx with the aid of White's palate retractor. A bacteriologic examination of the secretions of the lesion, and anti-syphilitic treatment would usually

enable one to make the differential diagnosis between tuberculosis, syphilis and diphtheria in obscure cases. Local and systemic anti-syphilitic treatment were called for in syphilitic diseases of the naso-pharynx. He was personally in favor of the hypodermic method, using bichlorid of mercury in doses of 1-16 to 1-4 of a grain. The injections are usually given deeply into the muscles of the lumbar region. He gave the mercurial as long as the disease showed activity, and then interruptedly for two years. The alkaline douche and black wash should be used locally. Where there was much dysphagia, orthoform sometimes proved useful.

DR. GEORGE L. RICHARDS, of Fall River, advised that a thorough trial of anti-syphilitic treatment should be given in cases in which a diagnosis of syphilis had been made before resorting to any surgical interference, for, the chances were that such interference would then be found unnecessary.

DR. L. A. COFFIN, of New York City, referred briefly to two desperate cases of syphilis in the pharynx.

DR. CHARLES F. MCCAHAN, of Aiken, S. C., said that in his experience most of the cases of tuberculosis of the throat are secondary, and he believed that the same was true of tuberculosis of the nose.

DR. PRICE BROWN, of Toronto, said that a gentleman had been referred to him by an oculist, some six months ago for nasal treatment, with the statement that the man had specific keratitis, and had been receiving anti-syphilitic treatment. Examination of the nose showed that the trouble there was traumatic, not syphilitic. He subsequently returned with a perforation of the soft palate, evidently the result of the formation and breaking down of the gumma. The history showed that he had become syphilitic ten years before, but after having been treated for a time had married. Both children were healthy, and the wife is said to be healthy. Under anti-syphilitic treatment the condition of the palate has been kept in check.

An Operation for Prominence of the Auricle.

DR. THOMAS R. POOLEY, of New York City, read a paper on this subject. The patient was an actress, twenty-eight years of age, and the operation had been done on both

ears at an interval of a few days, following closely the method of Dr. Edward T. Ely. An incision was made through the skin along the entire length of the furrow formed by the junction of the auricle with the side of the head. This was joined at each end by a curved incision, and the skin dissected off. An elliptical piece of the cartilage, 1-8 by 1-3 of an inch, was removed. The wound was united by seven interrupted sutures of black silk, four passing through the skin only, and the other three through both skin and cartilage. The operation was done under local cocain anesthesia under strict asepsis. The wound behind the ear healed by first intention, and that in front by granulation. The first operation had been done on August 6, 1900, and the patient was well satisfied with the result, and he had been pleased with the method of operating.

DR. M. D. LEDERMAN, of New York City, reported two cases upon which he had operated. One was a large sebaceous cyst in which after the removal of the cyst the auricle had been bent over on the external canal. He had accordingly made a V-shaped incision over the mastoid and removed a portion of skin. Primary union had taken place. The other case was in a negro who had a keloid growth on the lobe of the ear.

DR. T. PASSMORE BERENS, of New York City, spoke of a case in which the protrusion of the ear was caused by an excess of cartilage of the concha. In that case he had excised a piece of cartilage nearly half an inch in its broadest part. The wound was closed simply by a buried suture, and was dressed with collodion, binding the auricle to the side of the head by a gauze bandage. At the end of the fifth day the wound had healed, but the bandage was worn for eight days longer, and by that time the ends of the cartilage had united. The operation had been done two months ago, and at the present time the extra fold of skin left after the operation had nearly disappeared. He was opposed to making an anterior as well as a posterior incision.

DR. J. F. MCKERNON, of New York City, said that he had seen a very similar operation done ten years ago by Dr. George Abbott, of this city, except that three sections of the cartilage had been taken out without affecting the

skin anteriorly at all. The result had been very good. Within the last three years he had seen another case also yielding a good result.

DR. POOLEY said that he felt sure that any operation which did not involve a considerable dissection of the cartilage would not succeed, but whether one should go through the entire concha or not was a question.

Clinical Notes on Adrenalin.

DR. NORTON L. WILSON, of Elizabeth, N. J., read this paper. He said that Dr. Takamine had first shown him the active principle of the suprarenal gland last October, and at the suggestion of the author the name, adrenalin, had been adopted. The preparation was now on the market in the form of a 1 to 1,000 solution of adrenalin chloride, to which is added 5 per cent. of chloretone for its antiseptic and anesthetic properties. It is also furnished in the form of tablets, which are readily soluble. These are particularly useful for general use because of the ease with which a fresh solution can be made extemporaneously. Dr. Wilson said that for the eye he had used 1 to 10,000 and 1 to 5,000 only, and for the throat a 1 to 1,000 solution. One drop instilled into the eye produces a slight smarting sensation for about twenty seconds, during which time there is a noticeable hyperemia of the conjunctiva. In forty seconds the entire conjunctiva, both ocular and palpebral, is blanched, and this anemia lasts for about one hour. These solutions had shown no special effect on the cornea or pupil, and no anesthetic properties had manifested themselves. So far as could be observed, the sympathetic nerve was not stimulated, and the palpebral fissure remained unchanged. When used with cocaine the anesthesia produced by the latter is much deeper than it would otherwise be, probably because of the depletion of the vessels. If applied to the interior of the nose it blanches the membrane almost immediately, and in the examination of the nasopharynx it is of great assistance because of the shrinkage of the tissues thus produced. In profuse bleeding it is of little use because it is so rapidly washed away. In acute coryza it will relieve the swelling of the turbinates almost immediately and stop the profuse watery discharge, and for temporary relief in hay fever it has no equal. In a case of acute laryngitis coming under

his observation the voice was restored in twenty-four hours, and the pain very materially lessened by five applications of the spray. In acute pharyngitis and tonsillitis the relief is immediate, and is more lasting if combined with cocain. Every operation within the nasal chambers could be made bloodless or nearly so by the use of adrenalin, but it must not be forgotten that in an hour or two afterward there will be some bleeding, though no more than if adrenalin had not been used. The patient should be given a solution of 1 to 10,000 or 1 to 5,000 to be used at home for two days. In grip or other acute inflammations of the mucosa it was valuable in relieving the swollen mucosa, and thus draining the cavities. In operations affecting the ear his experience has been limited to the removal of polypi and granulation tissue. Adrenalin was best used in combination with cocain. He had never seen a case of cocain toxemia when used with adrenalin. The solution can be boiled and so made sterile. He did not use it in powder form because it was then much more irritating and caused sneezing. The best results were obtained by the absorption of the solution through the mucous membrane of the nose, and not from the stomach.

DR. J. A. STUCKY, of Lexington, Ky., said that he had used adrenalin extensively in nose and throat work since last November. He had found that it did produce some anesthesia. When used with cocain less of the latter was required, and the anesthesia lasted longer. He had found it particularly valuable in middle ear operations. He did not believe there was any more hemorrhage after its use than operations in which it was not used, except perhaps where there was a great deal of spongy tissue. He rarely used a solution stronger than one to three or five thousand; in subacute laryngitis he employed a solution of the strength of 1 to 10,000. An especially useful combination was with resorcin. He had also found it a very valuable remedy to combat the shock following anesthesia from chloroform or ether. In one case of this kind, occurring after chloroform, he had poured about half a drachm of a 1 to 5,000 solution on the tongue, and very quickly the heart action had been revived.

DR. T. PASSMORE BERENS, of New York City, said that he had been using adrenalin for about six months and had

found that it kept well in his office. He had purposely left one vial uncorked for six weeks, and had found it perfectly sweet and effective at the end of that time. It would blanch and clear up the Eustachian tube in those cases of acute middle ear catarrh of tubal origin. It had been his practice to inject through the catheter into the tube from three to 5 drops of the 1 to 1,000 solution, and then with a Pollitzer bag to blow it into the Eustachian tube. This would keep the tube open for a sufficient length of time to give the patient a great deal of comfort by allowing drainage through the tube. He had also used it hypodermically in two cutaneous operations about the face, and with good result, and also injected it beneath the mucous membrane of the cheek in opening the antrum of Highmore. Here it had answered well in preventing hemorrhage.

Dr. M. D. LEDERMAN, of New York City, thought the drug was especially valuable in lessening the absorption of cocain, and hence preventing the occurrence of cocain toxemia. Such cases were not nearly so frequent since adrenalin had been in general use. In a case of nasal hydrorrhea the local effect of the remedy had been shown when given by the stomach in conjunction with the local treatment. As it was an animal extract, he favored combining it with some cardiac stimulant to guard against the occurrence of cardiac weakness, when given internally, though it increases blood pressure.

Dr. OTTO STEIN, of Chicago, said that he had recently used this remedy in a case of antrum disease, expecting to have a bloodless field, yet he had had about as much hemorrhage with a 1 to 1,000 solution as if he had not used it. He employed it in another case in which he had entered the maxillary sinus, and the hemorrhage had been just as profuse as if it had not been used. He had commonly employed adrenalin in the strength of 1 to 3,000, though sometimes in stronger solution, and he had kept it in contact with the tissues for ten or fifteen minutes.

Dr. TALBOT R. CHAMBERS, of Jersey City, N. J., said that he had done the Gleason operation on the nasal septum a good many times, and had not observed the loss of over five or ten drops of blood from cutting the septum if adrenalin had been used. His method was to inject a few

drops of adrenalin (1 to 1,000 with 5 per cent. solution of cocain), underneath the mucosa, and then the syringe was withdrawn and a few more drops injected. Finally, a few drops was injected under the mucosa near the anterior nares. Just before operating, some cotton with 20 per cent. cocain is wiped over the hollow of the septum. There was no bleeding after cutting the septum under these circumstances. In one case in which he had done a secondary mastoid operation for purulent otitis media, a cholesteatoma had been found. It would have been almost impossible to have enucleated this entire without the use of the adrenalin, yet with the latter this operation had been performed with perfect success.

DR. H. HOLBROOK CURTIS, of New York City, said that while he thought the discovery by Dr. W. H. Bates of the suprarenal extract ranked with that by Dr. Carl Koller of cocain, he had come to the conclusion that there were cases in which because of idiosyncrasy it acted very badly. He had had eight or ten cases in which there had been an absolute intolerance of adrenalin and of any of the preparations of the suprarenal gland. In one of the first of these cases a gentleman sneezed for two hours and a half after having used the suprarenal extract, and then on his return cocain had been used and had given immediate relief. The sneezing had, however, returned in the evening, and had lasted for hours. He had had hay fever patients after using suprarenal extract for a few days, suffer from violent pain in the upper part of the nose, necessitating the discontinuance of the remedy. Last fall he had himself used the adrenalin spray for a few days, and then a terrible coryza had set in and had resulted in a genuine hay fever, which had only ceased on the discontinuance of the adrenalin. He had done over 100 septum operations, and when used with cocain he had yet to see any untoward symptoms. He would like to know if intense pain or sneezing or violent coryza had been noted by others after the use of this substance.

DR. EDWARD B. DENCH, of New York City, said that he had not used the adrenalin, but had employed suprarenal extract. In all of his cases the effect had been entirely satisfactory as far as the control of hemorrhage was concerned. In one case, where owing to the age of the pa-

tient he had avoided general anesthesia, he had done an Asch operation with the aid of cocain and suprarenal extract, and there had been practically no loss of blood. This has been his experience in many other cases. In middle ear work he had found suprarenal extract of great value. His method of using it was to saturate a small strip of gauze with the sterilized solution of suprarenal extract, and pack this through the speculum down upon the bleeding point. If left there for about a minute and a half it would be found that the field was practically dry.

DR. S. MACCUEN SMITH, of Philadelphia, said that he had found the drug of special value in cases in which it was used with cocain to prevent cocain poisoning. He was accustomed to apply a 20 per cent. solution of cocain, but he never sprayed it into the nostril, but simply made a local application of this solution. Up to the present time he had no trouble with cocain alone.

DR. WALTER B. JOHNSON, of Patterson, said that it was important that the field be made thoroughly clean before the application of the adrenalin. He could not see that there was any difference in the action of suprarenal extract and adrenalin, though on the score of convenience adrenalin was greatly to be preferred. He had not met with any idiosyncrasies, all of the cases in which he had used it having been very satisfactory. The effect of the adrenalin on the lymph channels of the eye was very important.

DR. MAX A. GOLDSTEIN, of St. Louis, said that occasionally a very acute irritation was produced by spraying a weak solution of drug on the mucosa. He would like to suggest to Dr. Takamine that this might be overcome by dissolving the adrenalin in an oil instead of using an aqueous vehicle. A 1 to 1,000 solution would be found useful in cases of acute congestion of the larynx, the acute laryngitis of singers. If a solution of this strength were sprayed upon the larynx just before singing the result would be most gratifying.

DR. L. L. MIAL, of New York City, said that he had used the suprarenal extract in the nose in two cases in which it had produced violent sneezing, lasting ten or twelve hours. The solution of adrenalin with chloretone was distinctly anesthetic, and did not produce this sneez-

ing. He had used this combination in removing spurs from the septum and chalazion from the eyelids. It caused slight smarting for a few seconds, but was very soothing after the application of sulphate of copper in cases of trachoma.

DR. M. R. WARD, of Pittsburg, said that he had had some adverse results, but had not attributed them to the drug used but rather to a defective technique. He had met with some irritating effects from the remedy, but had never seen any hemorrhage after its use. In some plastic operations on the septum he had had some difficulty in the way of sloughing. Whether this was due to lack of cleanliness or to the disturbance of nutrition produced by the drug he was unable to say.

DR. R. C. MYLES, of New York City, said that he had been particularly fortunate in the use of powdered suprarenal extract during the past few years. In the last few months he had unfortunate results with the aqueous solution with resorcin, and had three patients leave him because of this. In one case he had used in the nose a 10 per cent. aqueous solution of suprarenal extract containing 2 per cent. of resorcin. It had caused very troublesome sneezing, and then the patient had disappeared. In another case the sneezing had lasted all night and all the next day. All these unfavorable results had occurred in connection with the use of the aqueous solution of suprarenal extract, never with the powdered extract. The solution had been boiled each time.

DR. PRICE BROWN said that he had not used the extract for about one year because he had met so frequently with irritation. He intended to try adrenalin.

DR. CHARLES W. RICHARDSON, of Washington, D.C., thought that all must have noticed certain constitutional effects, such as attacks of vertigo, with nausea and headache, resulting from internal administration of the drug.

DR. JOCHICHI TAKAMINE, of New York City, was invited to take part in the discussion. He said that his work had consisted simply in the isolation of the active principle of the suprarenal gland. He had been the first one to isolate this active principle in the chemically pure crystalline form, and he looked upon this feat as only the beginning of great progress in organotherapy. It was probable that

the active principle of many other glands would be similarly isolated in the near future. The very fact of adrenalin being crystalline was Nature's certificate that it was a definite chemical substance. It was not his province to determine the best dose or strength in which it should be used. Chemically, the adrenalin was a very mild alkali, the alkalinity of which had been just neutralized. He could not, therefore, understand why it should produce such irritation as had been described by some of the speakers. Dr. E. Fletcher Ingals, of Chicago, was one of those who had complained to him of the irritation produced by adrenalin, but from a published article by Dr. Ingals he had learned that this physician had been in the habit of dipping his instruments into a formalin solution. This, of course, would readily explain the irritation observed. It was well known that distilled water produces a good deal of irritation in the eye, and also in the nose, and hence, the solution should be made slightly alkaline. The ordinary suprarenal extract contained considerable mineral matter, and its solution was therefore similar to normal salt solution. He had tried the plan of dissolving adrenalin in oil but had found it practically insoluble. He had, however, succeeded in making an oleate of adrenalin, but the moment this is sprayed it is liable to oxidize and to become quickly inert. It might be possible by the use of a device which would expose only five or ten drops to the air to make use of this oleate and so overcome the objection just mentioned.

DR. WILSON, in closing the discussion, said that he had observed none of the cases of irritation. He had seen irritation from the watery extract of the suprarenal extract, and yet in the same patient adrenalin had not produced this irritation. He had never succeeded in obtaining as active a preparation of the suprarenal extract after sterilizing it by heat. Such deterioration he had not observed with adrenalin, which could be sterilized repeatedly without lessening its efficiency. He had never observed sloughs after the use of adrenalin, though he had used this drug for two days after operation. He was inclined to think that some physicians used it too strong; one to five or ten thousand was strong enough for ordinary cases.

Empyema of the Right Maxillary, Ethmoidal and Sphenoidal Sinuses, With Subsequent Blindness of the Left Eye: Operation and Recovery of Sight.

DR. T. H. HALSTED, of Syracuse, N. Y., reported this case, and called attention to the frequent anatomic variations in the structure of the sinuses. In the past year many cases had been reported showing the relation of sinus disease as a cause, and eye lesion as a result. The case reported was that of a woman of forty-five who, on awakening, had found herself totally blind in the left eye. Examination showed swelling of the sheath of the left optic nerve, enlarged and tortuous veins and quantitative perception of light only. For about two years she had had some nasal catarrh, and some months previously had had an acute exacerbation characterized by a constant and free discharge or odorous pus. This pus had been discharged only from the right side. On examination he had found the left side clear. There was pus coming from under the right middle turbinate. Under transillumination the right maxillary sinus was completely dark, and both frontal sinuses were very translucent. The left pupil was widely dilated and there was exophthalmos. He had made the diagnosis of empyema of the right antrum, right ethmoidal and sphenoidal sinuses, with rupture and probable pressure on the optic nerve. He had advised immediate opening to relieve the pressure. Under cocain anesthesia and with the aid of suprarenal extract the operation had been undertaken, but had been carried on with difficulty because of the free hemorrhage. A week after the operation she could count fingers, nasal respiration was much improved, and pus was coming from the right side of the nose. Two or three weeks later it had been necessary to enter the antrum and evacuate a considerable quantity of stinking pus. The antrum tube had been removed now about six weeks; she was entirely free from headache and insomnia and her general condition had greatly improved. She could read ordinary type with the left eye. From a study of this case it seems probable that the sudden onset of blindness was the result of the accumulation of pus in the sphenoidal cavity and pressure on the optic nerve running through the optic foramen.

A Case of Frontal and Ethmoidal Disease With Abscess of the Orbit.

DR. THOMAS R. POOLEY, of New York City, reported this case. The patient was a youth of nineteen who had come to him suffering intense pain around the right eye and that side of the head. The temperature was 104 F., and the pulse 120. Six years previously this eye had suddenly swollen, and had been relieved somewhat by an incision of the lid. Two years later the sinus had been opened to relieve the swelling. Dr. Pooley had operated under ether anesthesia, exposing the orbit. The sinus was found enlarged and was curetted. On entering the depth of the orbit one or two drachms of pus escaped. An opening was then made into the anterior ethmoidal cells, and through the infundibulum into the nose. A soft rubber catheter was then drawn through and the ends of the tube tied together. The wound was packed around the tube. This operation effected immediate improvement. Almost daily dressings were made, and at the end of two months healing was complete. Numerous nasal polypi were discovered after this operation, but they disappeared in a short time. The paper concluded with a reference to the common involvement of the accessory sinuses after scarlet fever, and the need for prompt and thorough treatment when there is external swelling. The patient was exhibited.

Empyema of the Frontal Sinus; Some Observations on Its Treatment.

DR. GEORGE L. RICHARDS, of Falls River, Mass., read this paper. He called attention to the fact that the frontal sinus varied in position, size and thickness. The danger to life of empyema of this sinus he considered to be very small. If exploratory puncture of the antrum were negative, then the source of the pus might be the anterior ethmoidal cells. Transillumination was of some value. As a rule, the entire anterior portion of the middle turbinate would have to be removed as a preliminary measure to treatment. These cases tend to get well if the drainage were thorough enough. The direction of the canal having been determined by means of a probe, a silver or hard rubber tube, curved like the probe, should be passed in and the sinus washed out. Where the purulent discharge

had lasted a long time and polypi had formed, it was more difficult to decide upon the best method of treatment. The anterior ethmoidal cells should be thoroughly destroyed with the curette. He had the best results from irrigation when he had used a solution of corrosive sublimate, 1 to 10,000. The question of operation must depend upon the presence of evidence of septic absorption, of symptoms of cerebral irritation or the recurrence of attacks of pain. He preferred to make the opening between the supra-orbital notch and the root of the nose and underneath the ridge, and preferred the mallet, chisel and curette to the surgical drill. The opening should be made as large as possible, and all of the ramifications of the sinus vigorously curetted. The best form of drainage was by the fenestrated rubber tube. The tube should be retained at least two or three weeks. It was best to keep the external wound open for a time.

DR. NEIL J. HEPBURN, of New York City, said that in Dr. Halstead's case the blindness might have resulted from a thrombosis of the central retinal vein. Unless the pressure had occurred very suddenly it could hardly account for the very sudden onset of the optic neuritis of that grade. An ordinary optic neuritis coming on from pressure would disclose a certain progressive loss of vision. He had witnessed one case of operation on the sphenoidal abscess by an eminent surgeon, in which the cavernous sinus had been accidentally opened. The hemorrhage had been most startling, but the surgeon had retained his composure, and had succeeded in controlling the bleeding by packing in a way which had led the eye witnesses to have less dread in the future of the occurrence of such an accident.

DR. TALBOT R. CHAMBERS said that many cases of frontal sinusitis if taken in hand early might be aborted before the occurrence of the purulent stage. The accumulation of mucus in a frontal sinus was the first step of a sinusitis, and could be readily evacuated. When entering the sinus and removing bone, it was better to use an instrument which could punch out an opening. A case was mentioned in which at one sitting he had taken away the inferior turbinate and the covering of the sphenoidal sinus, and opened the whole space into one cavity. By this pro-

cedure the mucous secretion could be removed in certain cases at an early stage.

DR. SARGENT F. SNOW said that two years ago he had a case quite similar to the one reported by Dr. Halstead. The difference was that the blindness had been a week in coming on. There had been so much pressure that the vitality of the bone had been lowered, and the operation had been done for the most part with Buck's ear curette slightly bent near the ring, a very safe instrument for such work.

DR. REDMOND W. PAYNE, of San Francisco, said that Dr. Richard's paper and exhibition of skulls called to mind some of his own work. He had endeavored to determine the number of anomalies met with in this region. In the formation of the sinus itself was to be found the reason for many failures. In some of the sinuses that he had examined the depth of the sinus had run back over the orbit almost to the optic foramen, both plates being exceedingly thin. In some instances in which the sinus had run back deeply it had been divided into several compartments by bony septa. Such cases showed at once the impossibility of eradicating the disease by any opening below without an attempt to reach it with the curette. The external wall should be removed either entire or in section, thus exposing the seat of the disease, and admitting of thorough exploration. If the mucous membrane lining the sinus had undergone fungus or polypoid degeneration, and two-thirds of it only had been removed, the patient would not be permanently cured. Many of these cases of chronic suppuration would go on for years. Not many cases of meningitis have been reported in this connection, but as there were many cases of meningitis following chronic suppuration of the ear he saw no reason why the same should not occur in cases of sinus disease.

DR. CHARLES W. RICHARDSON, of Washington, D. C., spoke concerning operative intervention in cases of purulent discharge from these sinuses. When pus issues from a closed cavity the proper course was to insist upon the opening of the sinus and removing the diseased condition found there. It seemed to him that conservatism was not at all in place where there was a purulent discharge from these sinuses. In a sinus so accessible as the frontal there

should be no question as to the wisdom of operative intervention. A very slight purulent discharge might be connected with very extensive disease. In other regions of the body in which operative intervention was much more dangerous the general surgeon did not hesitate, and he could not see why the rhinologist should be so backward about operating. No one hesitates about opening an abscess of the mastoid. These operations should be done promptly and thoroughly as possible.

DR. R. C. MYLES said that free drainage was far better than anything else. He had always been opposed to over-curettling of these sinuses, for he was of the opinion that by such treatment the period of convalescence was greatly prolonged or indefinitely postponed. By such curettling the mucosa and periosteum were removed, and the re-formation of these tissues not only takes a long time but is apt not to re-form in many crevices, and this leads to a permanent discharge. Extensive destruction of the ethmoid cells or of bony tissue intended to protect the frontal sinus usually made the patient's condition worse than before the operation. According to his experience, the best way of obtaining free drainage was by removing the anterior end of the middle turbinate, and also the median wall of the anterior ethmoidal cells. This alone with proper irrigation, would effect a permanent cure in the majority of these cases. It was his practice to remove the anterior wall of the sphenoidal cells rather thoroughly, never curettling the upper wall. In a few months the opening would close by contraction of the mucous membrane, but it could be quickly and almost painlessly opened with a bistoury. In the unfavorable frontal cases, the great obstacle was the nasal process of the superior maxillary bone. Entrance above the orbit was the straightest way for removing this process. This could be done well only by making the opening above the supra-orbital ridge. He formerly did the infraorbital operation and had experienced great difficulty in getting rid of this hard, bony process. In his opinion, all cases of acute empyema of these cells should be carefully studied before attempting operations. In chronic cases, conservatism should be given a trial. Frequently irrigation would be sufficient, or the mere extraction of a tooth, and it should

be tried first, care being taken to explain to the patient that it was in the nature of a preliminary operation.

**Observations Upon the Treatment of Stricture of the
Lacrimal Duct by Electrolysis.**

DR. L. L. MIAL, of New York City, read this paper. He said that he had found silver the best metal to use, and preferred to place the positive electrode on the wrist. As a stricture was never the whole length of the canal, it was a matter of much importance to apply the current only to the narrowed portion. He had used the volt selector, the amperemeter and a rheostat, with the Edison 110-volt current. Any one could satisfy himself of the relaxing effect of the current by introducing an instrument which is tightly grasped, and then noting how loosely it was held after the passage of the current. Each séance should last from thirty seconds to three minutes. Several illustrative cases were reported. The author claimed that electrolysis is harmless if used properly, that it is antiseptic in its action, that it is much less painful than the usual mode of passing the probe, and that it dissolves and relaxes strictures much better than any other method, thus diminishing the danger of tearing the mucous membrane and making false passages.

DR. T. R. CHAMBERS asked if Dr. Mial had used the combination of cocain and adrenalin in the lacrimal canal. He had found that if it were passed in by a small bougie it would be possible to pass a No. 2 or 3 probe. The electrolytic treatment of these cases was new to him, and called for serious consideration, even after making all due allowance for enthusiasm.

DR. N. L. WILSON thought the advantage of electrolysis was simply to relieve the stricture. When he had begun to use electrolysis in the Eustachian tube for this purpose it had occurred to him that the method was applicable to the lacrimal duct, and he had used it in that duct with equally good results as regards relieving the stricture.

DR. C. DUNBAR ROW, of Atlanta, Ga., said that he had used electrolysis in the Eustachian tube, but not in the lacrimal canal. He would like to ask whether these electrical bougies are passed through the upper or the lower canaliculus, and whether the latter is always slit before the passage of the bougie.

DR. E. E. HOLT, of Portland, Me., said that the treatment of these cases was exceedingly difficult at the best, and any improvement should be welcome. In 1881 he had spent some time with Dr. Bowman, and had studied the subject very carefully with those attending the Seventh International Medical Congress in London at that time. It was quite amusing to note the different methods of treatment by those living in different parts of the world. He noted that Dr. Bowman had had some of his cases under treatment a very long time, one of them for fourteen years. He had remarked at the time that quicker methods were demanded in America. Dr. Holt said that his routine method of treating lacrimal disease of long standing was to dilate the lacrimal canal under ether anesthesia up to No. 13 Bowman, and put in a lead style. He believed, however, that in many cases a good deal could be accomplished by electrolysis.

DR. MIAL, in closing, said that he had used adrenalin and cocain in the lacrimal duct, and while it allowed one to pass the probe with less discomfort to the patient, it had no effect on the stricture. He had used the electrical probe in both the upper and lower canaliculi, but for stricture of the lacrimal duct he always used the lower canaliculus, and the great advantage of the electrolytic method was that one could easily dilate to No. 5 or even to No. 8. When an insulated electrical bougie of such size could be introduced the result was exceedingly good, and was obtained without risk. One should not lose sight to the fact that the strictures are relieved. Why the epiphora was not relieved in certain cases he was not prepared to say. He was of the opinion that a stronger current could be used in the Eustachian tube than in the lacrimal duct. He could not give the reason for this, but probably it was because there was more moisture in the lacrimal passages.

A Few Remarks on a Generally Unrecognized Ear Disease.

DR. H. A. ALDERTON, of Brooklyn, N. Y., read this paper. He said that the mucous form of otitis occurs more frequently in adults than in children, and often after an attack of grip. There was often little or no pain, but a stuffy feeling in the ear and a diminution of hearing. Crackling sounds on blowing the nose or swallowing

was not so common as in the serous variety. Tinnitus was apt to be severe, and there might be vertiginous attacks. Inspection showed but little congestion, but the membrane in its normal condition, though lacking lustre and having a dull gray color. There was a dull looking area of hyperemia about the handle of the malleus and at the periphery of the drum membrane. In most cases the tube was obstructed. There was a noticeable disproportion between the power to hear a whisper and the spoken voice. The upper tone limit was not much affected. The pulse and temperature were practically normal. The condition might last from a few weeks to a number of years. Inflation of the tympanum improved the hearing. On incision of the tympanic membrane there might be no discharge, but on inflation a stringy tenacious discharge made its appearance in the canal, and the hearing was immediately greatly improved. Douching through the external canal had seemed in his experience to do only harm. The treatment par excellence was incision and evacuation of the tympanum with measures directed toward improving the condition of the naso pharynx. The drum membrane was often healed at the second dressing.

Tuberculous Otitis Media, Mastoiditis and Meningitis in an Otherwise Apparently Healthy Adult.

DR. J. F. MCCAW, of Watertown, N. Y., made a brief report of this case. The patient, a male of forty-five years, he had first seen on December 11, 1900. About one year previously, without assignable cause, a thin discharge had begun from the left ear, and at intervals of two or three months there had been an attack of slight pain in the ear and sensitiveness in this region, with an increase in this discharge. There had been no special change in his general physical condition up to seven weeks before coming under observation, when he had had an attack, supposed to be the grip. About this time he had had one of the attacks of pain around the left ear, and for the last week had become lethargic and weak. On examination he could not be aroused from his stupor, but responded to stimuli. There was tenderness over the ear and a foul discharge from the ear. The tympanic cavity was filled with granulation tissue and pus. No glandular enlargements were

observed. The diagnosis of cerebral abscess was considered probable. The mastoid operation had been done the same afternoon, and this had revealed extensive bone destruction. The wall of the sigmoid sinus and the meninges of the brain were exposed during the operation, and were found to be studded with numerous miliary tubercles. The patient died twelve hours later. At the post-mortem examination of the lungs, liver, spleen and kidneys were found free from tubercle, and the mesentric glands not enlarged. Scrapings from the mastoid showed the presence of tubercle bacilli and streptococci. An examination of the brain was not permitted. The experience of most observers seemed to indicate that primary tuberculosis of the ear occurs infrequently.

DR. GOLDSTEIN, of St. Louis, reported three cases observed by him during the past ten years, of mastoiditis which might possibly be considered primary. The first case had been reported about nine years ago. The patient was a little colored boy in whom the sequestrum contained the cochlea and part of the semicircular canals. Numerous tubercle bacilli were found in the discharge from the ear, and physical examination failed to reveal a tuberculous process in other parts of the body. Eight months later this child died of pulmonary tuberculosis, so that it could not be said that the case was really one of primary tuberculosis of the ear.

(Concluded in Next Issue.)

BOOK NOTICES.

Klinische Vorträge aus dem Gebiete der Otologie und Pharyngo-Rhinologie. Jena, Verlag von Gustav Fischer. 1901.

Viemter Band. Fünftes Heft. Zur Behsundlung der "thockenen" Mittel Ohr affectionen insbesondere mit der federnden Dracke Sonde. Von Prof. Dr. L. Jacobson. Berlin.

The author traces the use of massage by sound from the time of Lucae (1884) to the present day. A newer model is illustrated and the method of employing it explained. He cites several cases to prove its therapeutic power. Jacobson advocates as a special service to the general practitioner, superior in worth to complicated mechanical apparatus, and easy to apply.

The paper is a partisan appeal, but Jacobson's name guarantees thorough scientific reasoning and a claim based on both experience and comparison.

A. B. HALE.

Klinische Vorträge. Viérter Band; sechstes Heft. Die Entzündungen des Aeuseren Gehörgouges. Von Dr. Wm. Grosskopf. Osnabrück.

A decided resumé of the abnormal conditions found in the external meatus. Grosskopf is an advocate of the tampon, especially one saturated with an oil of acetate of albuminum. The ground is covered thoroughly, and for a schematic presentation of conditions as here found, is well worth reading.

A. B. HALE.

Erschütterung des Ohrlabryntnes (Commotio Labarynth) von Dr. R. Spira. Krakau.

Klinische Vorträge aus dem Gebiete der Otologie und Pharyngo-Rhinologie. Fünfter Band: Erstes Heft. Verlag von G. Fischer Jena, 1901. 1 Mark 80 pf. (45 cts.).

The author has practically exhausted the literature of fact and theory concerning functional disease of the hearing apparatus (labarynth) and in doing so he gives us an interesting essay of 70 pages. In dealing with the subject he adopts the classical method of subdivision into etiology, pathogenesis, diagnosis, prognosis, medico-legal significance, prophylaxis and treatment. Fortunately he makes no attempt to exploit a theory of his own, nor to combat any theory of others, but frankly acknowledges that the subject is as yet too obscure for exact dogmatic statement. Neither does he pad the article with cases. In the treatment advised he is more hopeful than is the average text-book and suggests one novel method (exercises to overcome vertigo) which ought to attract attention. If much originality is expected, it will not be found, but if thoroughness is what the reader is after, no better essay has been published.

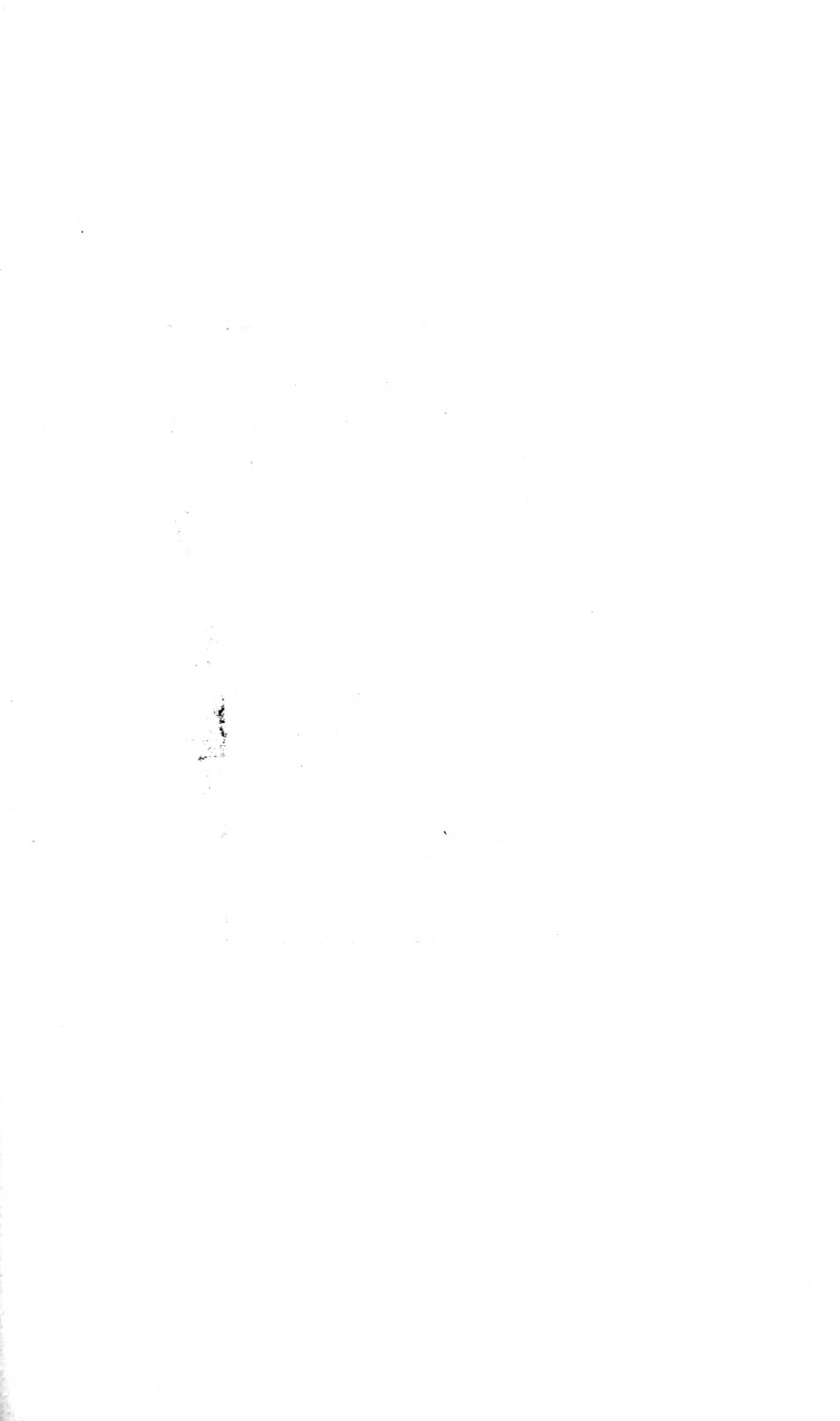
A. B. HALE.

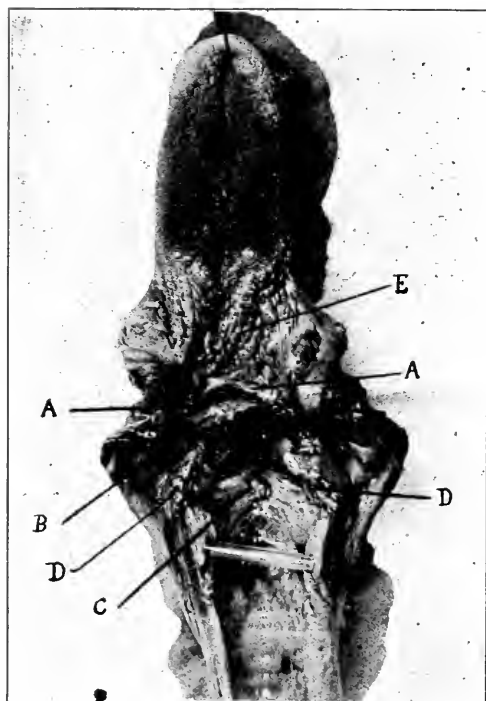
The Year Book of the Nose, Throat and Ear.

The Year Book of the Nose, Throat and Ear. Edited by G. P. Head, M. D., and A. H. Andrews, M. D. The Year Book Publishers, Chicago.

It was the intention of the editors to give a fair presentation of the progress in nose, throat and ear work for the past year and this has been faithfully carried out. Abstracting has been done with discretion and not all articles published have been herein epitomized. All papers of importance, however, have been referred to under the proper heading, so that those interested may look them up. Subjects occupying a prominent place in the literature of the year have been given a corresponding emphasis and prominence in the book. The editors have done a large share of original work, although they have availed themselves of abstracts from other sources in some instances.

The editor of the nose and throat department observes that the journals are showing a higher grade of contributions on these subjects and many articles from original investigators have been published.





ANNALS
OF
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AND
LARYNGOLOGY.

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XXIV.

A CASE OF LUPUS OF FACE, NOSE, PHARYNX
AND LARYNX, WITH RARE DEFORMITY
OF LARYNX.

SAMUEL E. ALLEN, M. D.,

CINCINNATI, OHIO.

Sam'l. P., age 29 years, first came under my notice six years ago, when he was a nurse in the male strong ward of Cincinnati Hospital, whither he had come from a hospital in Pittsburg, where he had been both a patient and nurse. He had been afflicted with facial lupus since his 14th year. At this time he presented a very unpleasant facial appearance, the right nostril being completely closed by cicatricial tissue, and the left reduced to a minute, round opening, the entire tip of nose being composed of scar tissue. The upper lip was distorted and drawn upward. His breathing was noisy on slightest exertion, and his voice rough and somewhat muffled, although distinctly loud, conveying the idea that the cords themselves were unaffected. He had received all kinds of treatment for his facial lupus, both medicinal applications and the curette. He requested me to look at his throat as his breathing was

getting to be uncomfortably difficult. Inspection showed the roof of the mouth covered with cicatricial tissue, with a small raised nodule in center at the junction of the hard and soft palate, the soft palate drawn up and on the right side united to the posterior pharyngeal wall, leaving but a small opening into the naso-pharynx. Inspection of larynx disclosed two bands of fibrous tissue running from the base of tongue, at the level where the tip of epiglottis is ordinarily seen, downward and backward toward the posterior pharyngeal wall, uniting there and leaving a small irregular opening less than the size of a dime. Through the opening between the scar tissue folds, a roundish mass was seen, partially filling the opening and extending downward. Nothing could be seen of the interior of the larynx. Respiration took place through this opening, and seemed to be obstructed by the mass. There was no trouble in swallowing, the patient, however, being compelled to drink a good deal of water with his meals to help wash the food down. In order to free respiration a small portion of the interlaryngeal mass was removed. Examination of piece removed showed nothing but fibrous tissue with considerable epithelial thickening. The removal of this small portion of the mass benefited the dyspnea greatly. Patient continued his work as nurse, and some 4 years thereafter entered a medical college. The roof of mouth, posterior pharyngeal wall and the tissue about the lips, gave him more or less trouble right along and he often consulted me during the following five years, but never for any difficulty in breathing or swallowing. Thus things went along till January of this year, when he began to have more difficulty in breathing.

To establish freer respiration a portion of the nodule showing up through the opening was removed. This relieved dyspnea, but unfortunately rendered deglutition very difficult. Every mouthful would choke him, a large amount being regurgitated. Thinking to feed him by an esophageal tube the attempt was made to introduce one, and to our astonishment, we soon learned that the stricture was above the larynx, that the bands did not represent the aryepiglottic folds, but scar tissue running across the pharynx just above the larynx. There was but the one opening for food and air. All attempts to pass a tube or

even probe into the esophagus were unavailing as the tube slipped immediately into the trachea. It had never occurred to any one that he had for years been taking all his solid food through this little opening. A number of laryngologists saw the case and all failed to diagnosticate the condition by mere inspection.

The bands were then severed as thoroughly as possible. Deglutition became better but was always accompanied by most pronounced choking; everything seemed to go right into larynx.

During the last two months, patient subjected himself to some twelve X-ray exposures and as a result the cicatricial tissue on posterior wall of pharynx began to ulcerate, finally extending down and involving the bands. There was a copious muco-purulent discharge from the trachea and larynx. Tubercle bacilli were found in this discharge. The lungs became involved and he died September 12, from exhaustion.

The accompanying plate demonstrates the conditions present.

A. A. are the bands of dense fibrous tissue which run from the base of the tongue downward and backward just over the larynx and really stand for aryepiglottic folds except for the fact that they unite with the posterior pharyngeal wall.

B. represents the mass seen through the opening and is evidently what is left of the top of the epiglottis.

D. D. Are the arytenoid cartilages, somewhat bent inward, toward interior of larynx by the close proximity of the bands, A. A. The bands can easily be lifted up away from the arytenoids by passing the finger horizontally backward, if the finger is then turned downward it easily passes into esophagus.

Evidently the mass B. was essential to deglutition, stopping up larynx and allowing the bolus of food to pass horizontally backward and thence into esophagus.

Such probably were the conditions up to a month or so before death at which time the patient lost his voice completely, and the muco-purulent discharge became very profuse. These later changes are explained by appearance of interior of larynx. The anterior wall was nothing but

a mass of cicatricial tissue. There was hardly a trace of either true or false cords; no Morgagni pockets.

Both crico-arytenoid joints were ulcerated and broken down and the upper portion alone of the arytenoids was intact.

Microscopic examination of portions from different parts of larynx disclosed simply fibrous tissue and enlarged mucous glands. The lungs were studded with tubercular nodules.

The points of interest in this case are, first, the marked deformity and the peculiar method of deglutition practiced for such a long time. The vital importance to the patient of the mass which closed up the larynx during act of swallowing, demonstrates again how careful we should be in interfering with a larynx deformity to which patient has become accustomed.

It was a case of lupus, tubercle bacilli never being present until a month before death, although repeatedly looked for during the years of illness.

XXV.

EPIPHARYNGEAL LYMPHO-SARCOMA IN A BOY.*

HENRY L. WAGNER, M. D., PH. D.,

SAN FRANCISCO.

As regards epipharyngeal sarcomata our literature is scanty. The disease itself seems to have fallen under the observation of comparatively few writers, among whom Stoerck may be mentioned as having devoted special study to these neoplasms. Very rarely has the disease been found among children.

The interest in the following case arises from the fact that the pre-existing epipharyngeal tonsil must have been transformed into a small round-celled sarcoma.

The history of the case is as follows:

Some six months ago, Master V. A., 17 years old, whose father is suffering from locomotor ataxia and whose mother is dead, consulted his physician, Dr. A. L. Sobey (who kindly furnished me with the following data), about his condition. The young patient was an anemic, a stutterer, a mouth-breather, and somewhat deaf. He also showed signs of rickets and had been failing in health for some time, although he was still able to attend school. He complained especially of chilliness, general weakness, and headaches, including a pain in his neck. General treatment somewhat improved his health, but soon after this seeming convalescence he began to fail again, expectorating incessantly a serous sputum tinged lightly with blood. About this time his temperature was 102 F. and his pulse 96. He now complained of a pain in the region of his stomach and the headaches increased so in severity that even sleep was impaired. Various methods for the alleviation of his suffering were resorted to but, with the exception of reducing his temperature to the normal, with comparatively little success. As the spitting of blood increased, accompanied

*Presented at the Twenty-third Annual Meeting of the American Laryngological Association, at New Haven, May, 1901.

with a flow of pure blood from the left nostril, the attending physician concluded that these indications pointed to the fact that the trouble had its seat in the naso-pharynx, and called the writer in consultation.

We found the nose normal, though the mucous membranes were very anemic. The mouth showed a high palatal arch and in the epipharynx we found a growth as big as a hen's egg, stretching from one side to the other and obstructing the posterior portion of the nose. At various places, to the left of the growth, blood was oozing. The growth was neither lobulated nor soft to the touch of the probe, as sarcomata are said to be in this region, but, on the contrary, its surface was perfectly round and smooth, and its texture very dense. From the differential diagnosis we were led to conclude that we had here not to deal with a benign adenoid growth, but with one of a malignant type. We thought it advisable first to check the bleeding and this we were able to do with the aid of suprarenal capsule extract combined with menthol-glymol. The headaches decreased in their intensity sufficiently to allow the patient to hold his head erect and to sleep somewhat. The pulse and temperature were now both normal. Twelve hours later, however, paralysis of the left eye (abducens paralysis), with concomitant ptosis, set in, clearly indicating that the morbid process had already invaded the brain. The microscopic analysis of a portion of the tumor, which was excised for the purpose, gave the following results: Surface epithelium normal. Normal lymphoid cells lying in a reticulum. Collections of layer cells mingled with an intercellular substance, these cells being round, spindle and polymorphous in shape. Many thin-walled blood-vessels—some hemorrhage into tissues. Cellular elements very abundant in proportion to intercellular substance. Diagnosis: Small round cell sarcoma of lymphoid tissue. (DR. L. NELSON.)

Hemorrhage after the excision of the piece of growth was quite free but soon stopped. The patient now began to eat better and to sleep a great deal. Then appeared on the left side of the neck a swelling of the submaxillary glands which, however, soon subsided. Owing to the unfavorable prognosis (with or without radical operation) given to the family, the services of the writer here termin-

ated. Numerous other consultants who were called in later confirmed the diagnosis already made, with the exception of one colleague, who regarded the growth as benign and treated it with caustics. I have since learned that the temporary relief accompanying the latter treatment was astonishing, as the chilliness seemed entirely to disappear. Unfortunately, however, an otitis media purulenta set in soon after, the morbid condition of the eye persisted, and the patient grew steadily duller and weaker, and died about six weeks ago.

XXVI.

A RADIOGRAPHIC STUDY. (SHOWING AN IMPACTED METALLIC DISC IN THE ESOPHAGUS.)*

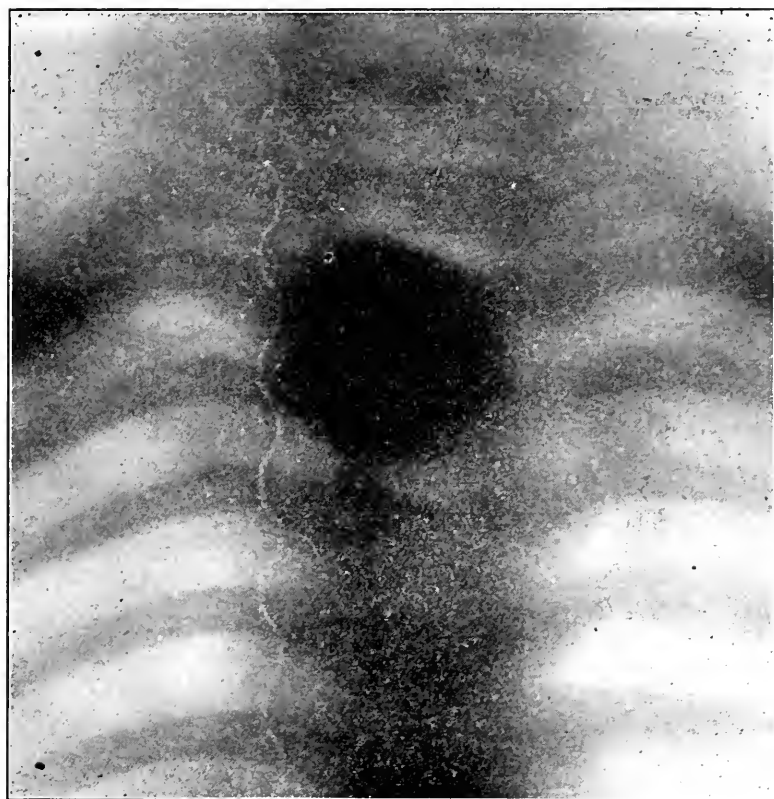
HENRY L. WAGNER, M. D., PH. D.,

SAN FRANCISCO.

A boy, 5 years old, was brought one morning to our polyclinic by his mother who stated that he had swallowed a brass "telephone check" some two hours previously. On learning from him what had occurred she resorted to a remedy which she had previously used with success upon an older boy, under similar circumstances: viz., that of lifting him up by the heels and holding him thus suspended, head downward, until the swallowed coin was ejected. In the present instance, however, this treatment did not have the desired effect and the boy was brought to the clinic.

On his arrival the young patient showed intense cyanosis and dyspnea. By means of radiography the check was at once located in the lower portion of the regio colli mediana, but whether in the esophagus or in the trachea could not definitely be ascertained by the photograph. By means of the laryngoscope the surgeon of the clinic definitely located the check impacted in the muscular folds of the esophagus. The radiograph disclosed the presence of a disc considerably larger than a telephone check, but as the statement of the mother seemed positive on this point, the increase in size was accounted for upon the hypothesis that the photographic image was enlarged by the diffused shadow of the object itself. Acting upon this supposition a special diet was ordered in the hope that the disturbing body might be forced to take its course through the normal alimentary canal. On the other hand, should the cyanosis and dyspnea persist, the patient was counselled to report

*Presented at the Twenty-third Annual Meeting of the American Laryngological Association, at New Haven, May, 1901.



promptly to the clinic in order that the check might be extracted by the writer, to whom the patient had been referred by the examining surgeon.

Late in the afternoon of the same day, the mother again visited the clinic. She reported that her child attempted to take food and had seemed to swallow it, but that after each attempt a spell of vomiting ensued, during which all the food so taken was vomited: that the boy had constantly complained of a metallic taste and of an incessant "pain in the neck (somewhat above the sternum) and in the stomach" (reflex action) and had at last vomited—not the telephone check—but a brass disc considerable larger, which she brought as *corpus delicti*.

On the following morning the boy's condition was perfectly normal. Comparing the diameter of his neck, which was found to be three inches, with that of the disc, which was fully as large as a twenty-five cent piece, it immediately became evident that it could never have passed the *œsophagus*.

It is of interest to note that in the radiograph, the metallic body was very little enlarged by its own diffuse shadow.

XXVII.

VOMITING WITH TRACHEOTOMY TUBE IN SITU.

OTTO SOMMERS, M. D.,

WASHINGTON.

Sometime in 1898 I made a slight modification of the tracheotomy tube, publishing first in the "Medical Times," (N. Y.) of which publication an abstract was made by Dr. Sheppegrell in your journal under the title of an "Extended Tracheotomy Tube." The purpose was to assist asepsis, and avoid "deglutition pneumonia" by way of the tubal orifice. I will pass over my further discussion of the instrument, as I never considered it worth much attention, although approved by McBurney as well as Tiemann, the instrument maker, and pass to the object of my communication which has been provoked by a colleague (laryngologist) in St. Paul.

Shortly after my original publication, I received a card from him asking whether my patient had actually vomited, and citing experiments on "dogs" to show that the presence of the tracheotomy tube in the trachea prevents vomiting. My patient did not vomit, but shortly after insertion of the tube sufficient signs of approaching vomiting appeared to warrant its abortion by the anesthetic. As my time was then limited I consulted Dr. Shrady, of New York, as to his knowledge of the subject; his reply, after a moment's reflection, was, "they do vomit." One of the most prominent laryngologists of Washington, acknowledged that none of his patients have ever vomited and referred me to the "dog experiments." Another equally prominent specialist said his few cases had not vomited but he saw no explanation why they should not vomit.

A careful search in the Surgeon-General's Library revealed what I had presumed, that it was an old and hackneyed subject which had led, among practitioners especially in England, to much correspondence and vague speculation, etc., in which experiments on "dogs"—the everlasting ubiquitous canines—figured prominently and negatively.

As I have a horror of such speculation and vague theorizing, I will content myself with stating what I found in the clinical literature on human beings, not dogs.

Namely, I found one case of a tracheotomized patient who had "uncontrollable vomiting." Vide: "The After Treatment of Tracheotomy," by S. Herbert Habershon, M. B., St. Bartholomew's Hospital Reports, Vol. XXI, 1885. "The child died on the eighth day of the disease and the second after the operation was performed. The symptoms were severe. There was extreme fetor of the discharge from the nose and larynx and a large amount of albumin in the urine, great anemia and uncontrollable vomiting and a temperature high throughout, rising to 106° before death." Are we to doubt that Mr. Habershon knows what ordinary, common everyday vomiting looks like, even when dignified by the somewhat more euphemistic term "emesis" by others? I am willing to believe that in this case it was a good case of plain Anglo-Saxon vomiting!

Or will the experimentalist require an analysis, microscopic, chemical, etc., to prove it a gastric evacuation and not a mere esophageal regurgitation?

Habershon at another place says: "The indication that too much food has been given is usually that regurgitation or vomiting occurs after feeding, or the patient becomes dyspeptic." This is all about the treatment of children with the trachea-tube in situ.

In case I, of his series of seven, "regurgitation," (N. B. not vomiting), "took place on the fourth day." Further: "A difficulty that sometimes occurs is that retching and efforts of regurgitation, bring back the end of the tube into the mouth where it can be coiled up" (he refers to the feeding tube while trachea tube is in situ).

Evidently Habershon considers vomiting and allied phenomena worthy of consideration in relation to tracheotomy.

He also indulges in considerable speculation as to the influence of the tracheotomy tube on the mechanism of the epiglottis, etc., in men (not dogs), but I will be consistent and content with the above clinical citation of human interest and leave the rest to the experimental physiologist.

Perhaps vomiting with the trachea tube in situ is rare, but why impossible?

XXVIII.

THE PRINCIPLES OF TREATMENT OF TUBERCULOUS LARYNGITIS.*

BY ST. CLAIR THOMPSON, M. D., M. R. C. P.; LOND.,
F. R. C. S., ENG.

PHYSICIAN TO THE THROAT HOSPITAL, GOLDEN SQUARE; SURGEON
TO THE ROYAL EAR HOSPITAL, LONDON.

The statistics of the pathologic department of the Brompton Consumption Hospital show that the larynx is affected in over fifty per cent. of the cases which succumb to pulmonary tuberculosis. As 70,000 persons die annually in the United Kingdom from this disease, at least 35,000 of them would have claimed our help in diminishing their sufferings from tuberculosis of the larynx. The statistics of averages warrant us in saying that there are in this country at least 75,000 who require our aid in arresting or easing the progress of tuberculosis of the larynx. The widespread character of this disease is therefore in itself a claim upon our attention; and when we remember the long drawn-out sufferings which may accompany it, and the youth of the majority of its victims, our humanity is keenly stimulated on their behalf.

The moment seems opportune for briefly reviewing the principles which may guide us in the treatment of tuberculosis of the larynx, for not only must we readjust older views to the modern light which has come upon the scene, but such an occasion of the present congress rarely occurs for supplementing the experience of the laryngologist by that of the general physician and the pathologist. That this review is very necessary, has been impressed upon me by the perusal of a large number of the most recent textbooks on laryngology, few of which contain any reference to the treatment of laryngeal tuberculosis by modern hygienic methods. The frame of mind of many laryngologists is reflected in a recent paper by Dr. Johann Sendziak, in which he makes mention of the "rational—that is,

*Read before the British Congress on Tuberculosis.

the surgical—treatment’’* of this disease, as if any method of treatment short of surgical was not worthy of being denominated as reasonable, and as if hygiene and rest were of no avail, and the *vis medicatrix naturæ* a myth.

Our principles of treatment are guided by clinical experience, but, when available, are based on pathologic knowledge. The pathology of tuberculous laryngitis is rendered difficult by the complexity of the anatomic arrangement of the larynx. The varieties in the structure of the mucous membrane and submucosa, the functions it performs, the proximity of tendons, ligaments, muscles, cartilages and joints, the disposition of lymphatics and vessels, the occasional movements required in deglutition and the constant rhythmic action of the vocal cords in respiration, are all points which have to be taken into consideration. While the morbid histology of tuberculosis can be so readily studied in the larynx that Virchow recommended it as one of the best opportunities for observing the process, yet the complicated nature of the larynx renders an investigation of the anatomic conditions an equally important part of our task.

Tuberculous affections of the larynx have been classified under four categories:

- (a) Superficial ulceration commencing from the surface;
- (b) Infiltration, followed by
- (c) Ulceration; and
- (d) Tumor formation, or tuberculoma.

This classification is of course somewhat arbitrary. It is seldom that two or more of these forms are not combined when a case first presents itself. As there is little doubt that in the large majority of cases infiltration precedes every other process, it is deserving of particular study as to its situation. It commences in the subepithelial layer, and when it takes place in regions where the mucous membrane is closely adherent to deeper tissue, and particularly to cartilage—as in the epiglottis, vocal processes, and arytenoids—it is very apt to spread to deeper parts, leading to perichondritis and cartilage necrosis. Although the mucous membrane of the vocal cords is closely attached

*Journal of Laryngology, May, 1901.

to the underlying tissue, the absence of subjacent cartilage renders infection of this part of the larynx a less rapidly destructive process. On the ventricular bands there is still less danger of immediate spread to adjacent cartilage.

Of all the various situations in the larynx the most frequently attacked is that of the arytenoids and the neighboring inter-arytenoid space. Lake found this part affected twice as often as the vocal cords, and three times as often as the epiglottis and ventricular bands.*

In the early stages of such cases the vocal cords not only show a want of tension, but careful inspection will show that their movements are impaired both in adduction and in abduction. This tendency to remain in the natural cadaveric position (i. e., the position of rest), the inter-arytenoid thickening, and the consequent dysphonia or aphonia, have inclined W. Fowler to look upon tubercular laryngitis as chiefly a joint disease. He supports his view by the record of between forty and fifty autopsies of tubercular laryngitis, and as his knowledge as a laryngologist helped to render these examinations very complete, I think the results deserve careful consideration. "In every case," he writes, "the greatest seat of the mischief was in the immediate neighborhood of the crico-arytenoid joint and the joint itself was always implicated. The deepest part of the ulcer, when ulceration existed, was always immediately in front of the joint, and the joint not only communicated with the floor of the ulcer, but was also more or less disorganized. In many cases the arytenoid was a loose piece of dead cartilage."†

The pathology of laryngeal tuberculosis requires still further study, but in any case we seem warranted in assuming that, as in other parts of the body, the first process is one of infiltration. Universal clinical experience and pathologic observations concord in establishing the fact that in a large majority of cases this infiltration first takes place in or about the arytenoid joints. Other parts are occasionally attacked primarily; the epiglottis less frequently than any other.

*Laryngeal Phthisis, London, 1901.

†"Intercolonial Medical Journal of Australasia," October 20, 1898.

Leaving now for a moment the pathologic aspect of the subject, let us consider it from the result of treatment. Writing in 1880, Morell Mackenzie observed, "It is not certain that any cases ever recover" (p. 383), and he states that he only knew of four in which he had reason to believe that the disease was entirely arrested.*

This view has been somewhat modified in the succeeding twenty-one years by the work of Moritz Schmidt, Krause, Heryng and others. Their work has, unfortunately, diverted attention too exclusively to the possibility of exterminating the disease from the larynx by knife and caustic. Recoveries have, indeed, been claimed under various treatments, but we must remember that arrest will take place in the larynx as elsewhere without any local treatment whatever. When reaction and resistance of neighboring tissues are sufficiently vigorous, the advance of infection is checked by the fibroid change, which is the natural and desirable process of cure. In many cases the recovery is deceptive; partial cicatrization of an ulcer may take place in one part, or retrogression of an infiltration occur in the region visible in the mirror, while the process may be spreading in the depths of the tissues, or in such parts as the ventricles of Morgagni and the subglottic region. Besides, the fore-shortened image we see in the mirror is a very unsatisfactory picture of the posterior laryngeal wall—the most important region in tuberculosis—and is always inadequate as regards the parts lying below the cords. Every one who performs a laryngofissure, or opens a larynx on the *post-mortem* table, is prepared to find disease invariably more extensive than it appeared in the laryngoscope.

But what remains to us of all the various methods of local treatment which have from time been vaunted as curative of laryngeal tuberculosis? Their very number is eloquent of their inefficiency, and although some cases may have recovered under treatment, and many may have been locally relieved, yet we need hardly stop to consider whether the various sprays, pigments, insufflations, submucous injections, or intratracheal injections, had more than an alleviative effect, or whether, in the majority of cases, the irritation and reaction they pro-

*"Diseases of the Throat and Nose," vol. i., p. 383.

duced did not far counterbalance any possibility of good.

None of the numerous methods which have from time to time secured some attention have ever appeared to me sufficiently rational to make them worthy of an extended trial. On the other hand, their disadvantages and uncertainties were only too apparent. I have therefore been compelled to appeal to the experience of others on this matter, and in doing so will only refer to what we may term the lactic acid and the surgical methods of treatment.

Applications of lactic acid to the tuberculous larynx have obtained such a vogue in the last ten or twelve years that the method has been applied *à tort et à travers*, practitioners in many cases persevering with it while the patient was being prevented, through its effects, from improving generally, or was even steadily deteriorating in health. In many cases I have known of its being applied over unbroken mucous membrane, covering deep infiltrations, or evident perichondritis, the surgeon apparently not stopping to ask himself how this superficial caustic could effect these deep processes, or do more than distress the patient and hurry on the progress of the disease. And now Freudenthal, who used it freely, states frankly that "it ought to be dispensed with as antiquated and barbarous torture of the patients."*

In 1899 Freudenthal subjected twenty-nine cases to surgical treatment without being able to record one single cure.† He then treated his cases of tuberculous laryngitis without curettage, and after a year's observations he wrote, "I believe my patients are just as well and perhaps better off than they would have been with the operation."‡

The extensive and trustworthy experience of Jonathan Wright has led him to the following statement: "The permanent radical cure of the local lesion of tubercular laryngitis is not materially hastened by the various methods of treatment in any but an insignificant number of cases."

That a certain number of apparently permanent cures have been effected is undoubted. I have myself verified such a case both before and after treatment, which was

*Journ. of the Amer. Med. Ass'n., 16 March, 1901.

†Philadelphia Med. Journ., 25 March, 1899.

‡Medical News, New York, 19 Jan., 1901.

shown by Dr. Lack to the Laryngological Society of London,* but the chief point to realize is that even the most enthusiastic supporters of surgical treatment of tuberculous laryngitis admit themselves that the majority of cases are unsuitable even for attempting operative measures. We must also remember that in this small minority of cases the method is painful and distressing; it cannot but react unfavorably on any general condition; and the result is extremely doubtful.

It seems to me that the treatment of the last decade has been based too exclusively on the bacillus as the one and only etiologic factor, and that due regard has not been given to more general considerations.

In indicating the slight and unsatisfactory results which have been gained from the direct treatment of laryngeal tuberculosis I must be understood as only deprecating much of the treatment in so far as it has been regarded as effecting a local cure. Where the progress of the disease—in the lungs and in the larynx—is not stimulated by local interference then many measures are available for symptomatic treatment, and we are well equipped nowadays for soothing laryngeal irritation and cough, easing pain, facilitating swallowing, and thus contributing to the general treatment and the possibility of cure.

We must look elsewhere at present than to surgical measures for a prospect of progress in the treatment of tuberculosis of the larynx. This progress is ready to hand in the making of an earlier diagnosis of local infection. The present is hardly the occasion, even if time permitted, for me to enlarge on the symptoms of the early diagnosis of laryngeal tuberculosis. Besides, the most detailed description of the laryngoscopic appearances could hardly portray a condition which would be recognized by any but an expert, so slight are the early changes and so variously are they combined. "In general," says Grünwald, "it may be said that it is impossible to teach anyone theoretically how to make a diagnosis from the picture in any given case, because, in order to arrive at a decision, one must first learn the development of many successive pictures by long personal observation. Not the picture of today, but that of yesterday, and that of to-morrow, must

*Trans. Laryngol. Soc., London.

decide for or against laryngeal tuberculosis.* But it is not only from the laryngoscopic appearance that a diagnosis of early local tubercular infiltration, or of even pre-tubercular laryngitis, can be made. We must make a careful and thorough examination of the entire body, and pay careful attention to such symptoms as anemia, anorexia, dyspepsia, loss of weight and strength, hurried pulse, and evening rise of temperature. The previous history of the patient, particularly in regard to hemoptysis and pleurisy, must be taken into consideration, and the family history should not be forgotten. There are many other indications of early tuberculosis, and these, together with the indications for the employment of tuberculin as a diagnostic test, I must at present leave out of consideration. In this way evidence can often be obtained which will complete the diagnosis of a laryngeal condition which might otherwise be treated as a simple catarrh. In the absence of positive confirmatory symptoms, and of other adequate explanation of laryngeal symptoms, we must treat suspicious cases by measures that we know now will avert a condition which, once well established, is almost always incurable. In doing this we are but working along the lines and making the same plea for early diagnosis which has been so forcibly advanced in recent years in the subject of pulmonary tuberculosis.

Once the early diagnosis is made the treatment is exactly the same as that now employed in pulmonary phthisis—the sanatorium treatment in what should practically be the open air, with rest, hygienic surroundings, and good food. To this must be added, more or less, strict insistence on voice rest. This is found to be beneficial in many cases, even when the larynx is not affected. It must be much more so in laryngeal cases, when we realise that in the majority of instances the focus starts near or in the crico-arytenoid joints.

The treatment of catarrhal or obstructive affections of the nose and throat, and of any intercurrent conditions of the larynx, must, of course, receive careful and suitable treatment, and it is, therefore, very desirable that those in medical charge of sanatoria should be skilled in practical

*Atlas and Abstract of the Diseases of the Larynx 1898.

laryngoscopy. But the important principle to bear in mind is *primum non nocere*, for even a clumsy examination of the throat may produce more irritation and harm than any treatment can counterbalance.

Briefly recapitulated, the principles to bear in mind in tuberculosis of the larynx are as follows:

1. Pathology and clinical experience show that in the majority of cases the focus of infection is near or in the crico-arytenoid joint.

2. Many cases only present themselves at a stage when the possibility of effecting a cure by local measures is quite untenable.

3. The principle of *primum non nocere* should be constantly kept before us, as many measures which have been tried in this affection have only distressed the patient and hastened the disease.

4. In the light of present knowledge and therapeutic resources, the most rational principle is to attempt to make an early diagnosis of the disease while in an incipient stage. Any persistent or suspicious laryngeal catarrh should be treated seriously on even a presumptive diagnosis.

5. Once diagnosed, the patient should be treated on the principles laid down in the modern method of sanatorium treatment.

6. Symptomatic treatment should be directed to any irritative, catarrhal, or obstructive condition of the air passages.

7. In addition, silence should be enjoined, the disuse of the voice being proportionate to the degree in which the focus of infiltration approaches or interferes with the arytenoid joint.

8. In cases where the situation or extent of disease do not warrant an expectation of complete arrest of the process, treatment should be symptomatic, and in many such cases the sanatorium treatment is uncalled for.

XXIX.

THE EARLY OPERATION FOR CONGENITAL CLEFT PALATE.*

JULIUS WOLFF,

BERLIN.

TRANSLATED BY DR. O. JOACHIM, NEW ORLEANS.

What I am about to say concerning the operation for the relief of congenital cleft palate in the earliest childhood is intended to amplify and confirm my views published six years ago in the *Archives für Klinische Chirurgie*,† and is based on experience I have since gathered. The views of different authors, as to the value of an early closure of the cleft palate, are given for the purpose of comparison with the results of my own observations.

v. Langenbeck said that he was convinced that the speech of patients, with congenital cleft palate, would be better and earlier developed if the operation could be performed in early childhood. After his own, and the previous failures‡ of Ebel and Passavant, he held the difficulties of operating on children to be indescribably great, and partly insurmountable. "I am deeply grieved," he added, "whenever delicate infants, with cleft palates, are brought to me, and I am compelled to express the

*A lecture by Julius Wolff, of Berlin, before the "Freie Vereinigung der Chirurgen," Berlin, on May 14th, 1900.

†Compare J. Wolff: Further communications concerning the operation of congenital cleft palate. *Arch. f. Klin. Chirurgie*, Bd. XLVIII, Heft iv, 1894.

‡Compare detailed literary references about the opinions of the elder authors in my article, "Uranoplasty und Staphylorrhaphy in Early Childhood," *Arch. f. Kl. Chirurgie*, Vol. XXXVI, Heft iv, 1887.

opinion that before the age of 12 to 15 years no operation is to be considered."

For the operation on clefts, limited to the soft palate, he later placed the age limit as early as 8 years. "I fear," he said in 1863, "the age of seven years will be the lowest permissible limit for the operation of staphylorrhaphy, which should not be made at all in infants."

Billroth, as well, entertained the expectation that, after early closure of the cleft, speech would improve from the very beginning, because the particular muscular apparatus would become better developed. Among seven children of 8 weeks to 2½ years operated upon he succeeded but once in entirely closing the cleft, in a child 11 months old, with double harelip and complete cleft, to the left of median line. Four years afterward he found decided guttural tone in the child's speech and no essentially different result from an early than from a later operation. In 1869 he expressed himself to the effect that his experience had not encouraged him to repeat this trying operation. Billroth, nevertheless, operated subsequently on two children with complete clefts, limiting himself, however, to the closure of the soft palate in the unreasonable expectation that, after early closure of the cleft of the soft palate, the cleft of the hard palate would close of its own accord. The operation on the nine months old child failed to close the cleft. In a child 14 months old the closure of the soft palate succeeded, but the expected spontaneous closure of the hard palate failed to occur. "This observation has," said Billroth, "made us one experience richer and one illusion poorer."

Otto Weber operated with unfavorable results on a child 2 weeks old and expressed the opinion that in children of this age the operation of uranoplasty was not a life-endangering procedure. He advised, however, against further trials at this age, because the lateral incisions made swallowing difficult and the motion of sucking again separated the velum.

Gustav Simon operated between 1863-65 on five children between 15 days and 5 years of age with indifferent results. In only two cases of complete cleft, he succeeded in closing the cleft in the region of the hard palate alone. He had undertaken the operation with a view of

saving the life of the patients. He called attention to the fact that children unoperated upon usually died of stomatitis, bronchitis or pneumonia due to direct admission of air, or of marasmus due to deficient suckling and swallowing. His experience justified the opinion that the closure of the cleft of the hard palate alone sufficed to meet the *indicatio vitalis*. Successful uranoplastic closure made suckling possible, enabling the tongue by pressure of the nipple against the hard palate, to perform this act. The uranoplastic operation was relatively easy as crying exerted no tension on the united edges. Simon believed that many children succumb to this severe operative procedure, but if only one of ten children should survive, even then the result of the operation would be as good as when the children are left to the disastrous influence of the cleft palate. The staphylorrhaphy, however, should not be performed in early infancy, but be postponed to the sixth or seventh year, when the operation, with the assistance of the will of the patient, would be more certain of success. The early staphylorrhaphy, even if successful, does not aid in the feeding of the child and probably does not aid in the improvement of speech, and cannot be performed with the necessary exactness on the deep lying defect in the oral cavity. The operation is usually unsuccessful as the united parts are continually pulled apart during swallowing and crying.

Ehrmann reported, in 1875, sixteen operations in children of 8 weeks to 4 years of age. Two patients died in consequence of the operation. Complete operative failure occurred in three cases; incomplete success followed in six cases. In five cases the cleft was closed, once after an operation on a child $2\frac{3}{4}$ years old with a cleft reaching to the teeth; four times after repeated operations, which were most always followed by fever, diarrhea, and vomiting. On the basis of this experience Ehrmann held that the closing of the palate could be performed successfully on children between 4 and 5 months of age and if in good condition the operation should, with good technique and not too rudimentary soft palate, be, usually, successful. Rarely, however, could the entire cleft be closed in one operation. On extensive clefts the staphylorrhaphy should be made first, and afterward the uranoplasty, during the first

year of life. On short clefts, which were not greatly endangering life, the operation should be postponed until the 2nd or 3rd year. In later years Ehrmann leaned toward those operators who waited until the sixth or seventh year for the performance of the operation, especially in cases where large and wide clefts existed.

Trélat, who operated in more than eighty cases of inherited cleft palate, was of the opinion that it was not permissible to operate before the seventh year. Children under 3 years of age, as a rule, died from the effects of the operation. The operation, he stated, amounted nearly to the addition of a certain fatal cause to what were only probable causes of death. Even in children between 3 and 4 years he considered the operation dangerous to life on account of the difficulty of subsequent nutrition, the probably secondary hemorrhages, gangrene of the flaps, etc. The operations were as a rule partially or entirely devoid of results, and, even if successful, were not of any immediate benefit.

Under the influence of such opinions the operation for early closure of the cleft palate seemed, in the later seventies and early eighties, forever to be eliminated from the domain of surgery. Because of the often very deficient functional results from uranostaphyloplasty the opinion of Hueter and Nélaton found general acceptance, that a prosthesis was of unquestionably greater benefit in cleft palates than an operative procedure. In accordance with this opinion every interest in the operation for the relief of congenital cleft palate even in the halfgrown and the adult had about this time subsided. In the early eighties I was able to show that the opinion of Hueter and Nélaton was erroneous and to prove the possibility of a satisfactory functional result in every case, if proper operative technique be followed, by suitable speaking exercises and, if necessary, by the use of the author's prosthesis for the post nasal space on an obturator designed by Schiltsky after successful closure of the cleft. On the basis of the proofs submitted, I held that the treatment of cleft palates, which had been left to the makers of palate obturators must be regained for operative surgery, which demand soon found universal approval. My attempts to secure a firm surgical position for the early operation, i.e. for the very early closure

of cleft palate, met almost everywhere with the liveliest opposition. Küster* admitted that brilliant successes in several children, even in the first year of life, had proven the possibility to surmount all difficulties of early operations but, he strangely contended, that the early operation was, and would remain an unnecessary and dangerous procedure, daring and not justified by sound reasons. The normal age for operation was and remained, in his opinion, between the years of 5 and 7.

My recommendation of early operation met with similar criticism at the hands of the French surgeons, Kirmisson, Le Dentu and Delbet. Kirmisson† feared that an operation performed too early in life would so debilitate the little patients, that they could not successfully resist the severe and numerous diseases of early childhood. The impressions of the palate‡ taken by Ehrman seemed to show an inhibition of development of the superior maxilla. Without having witnessed my method of operation, the procedure in early infancy seemed to him, in spite of the highest degree of operative dexterity, very difficult and dangerous, on account of the smallness of the field of operation, the thinness of the tissue, the ease of tearing through the stitch-wound, the danger of severe bleeding and the impossibility of effective asepsis in such young patients. He advocated as the time for operation the fifth or sixth year of life. Le Dentu§ also disapproved of the closure of the cleft before the fifth or sixth year. He also feared, judging from the impressions taken by Ehrman, interference with the facial development if an early operation be done. He cited my own|| published fatal cases, of early operation, in order to deduct therefrom the absolute inadvisability of operating on children under 6 years. The

*Küster, The operative treatment of cleft palate, *Transact. d. Deutschen Gesellsch. für Chirurgie* 1893. *Arch. für Klin. Chirurgie* Vol. XLVI 1893 p. 228.

†Kirmisson, *Lehrbuch der chirurgischen Krankheiten angeborenen Ursprungs*, Transl. by Deutschlander, Stuttgart, 1899, p. 108.

‡Idem., p. 189.

§Le Dentu, *Malformations de la face: Traité de chirurgie* T. V., 1897, p. 719.

||Idem. pp. 188 and 189.

former assistant of Trélat, Délbet,* stated that he would not operate before 6th or 7th year of age. It was not proven that early operations gave a better functional result than the operation performed at a later time, the difficulties were greater, the mortality higher and the failures more numerous. Albert† contends that the operation for congenital cleft palate could only be performed on adults because the enormous and great difficulties of the operation and after treatment make it advisable to test beforehand the patience and endurance of the subject and if necessary to institute a course of training.

As has been shown, the older authors based their judgment on their personal experience, while the authors just mentioned have never performed the early or the very early operation at all, with the exception of Küster, who, in a single, very favorable case, succeeded only after five attempts.‡ These authors based their unfavorable opinion entirely upon the failures of the older authors, without considering that the operative technique recommended by myself differed in many respects from that of the former operators.

Only one report of a series of early operations was found in recent literature (Inaugural Thesis of Dobberkau,§ Berlin, 1898), citing nine cases operated upon by Bergmann, of which two were children of 15-18 months, with one cure and one improvement. Three children were 2 years old with one cure and one failure, and four children 3 years old with four cures. With exception of these nine cases I am compelled to use my own cases as basis of the following considerations.||

I take the liberty of demonstrating to the association two instructive cases, especially notable on account of the

*Pierre Delbet, *Leçon de clinique chirurgicale faites à l'Hôtel Dieu*. Paris, 1899, pp. 1-21.

†Albert, *Lehrbuch der Chirurgie und Operationslehre*, 4 Aufl, 1890, I., p. 246.

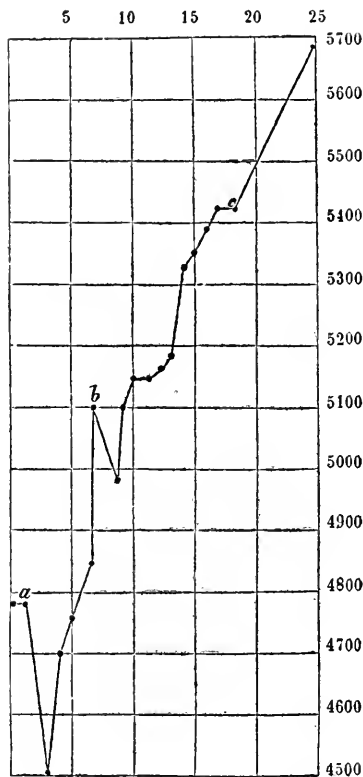
‡This case of Küster was a relatively favorable cleft in a child of 2½ years, incomplete, reaching only to the middle of the hard palate. S. V. Varendorff: *Final Results of Uranoplasty and Staphylorrhaphy*. Inaug. Diss., Marburg, 1894, p. 43.

§L. Dobberkau: *Cleft Palate*. Inaug. Diss., Berlin, 1898.

||While correcting proof the report of Tavel's case was received and appended to lecture.

favorable operative and highly satisfactory functional result. The first patient, a boy now 7 years old, was operated upon at the age of 6 months for a cleft palate extending through the soft and hard palate to the edge of the alveolar process. At birth the child was said to be in normal state of nutrition, weighing 3500 grams. At the

I.



- a. Loosening of flaps, Nov. 29, 1893.
 b. United, Dec. 5, 1893.
 c. Discharged from clinic, Dec. 16, 1893.

time of the operation the child was in a precarious condition, weighing only 4780 grams. On Nov. 24, 1893, the flaps were prepared; on Dec. 5th they were united by stitches; on Dec. 16th the child was discharged, weighing 5420 grams. See adjoining table (I) of daily weight record.

The cleft, with the exception of a small fistula in the middle of the palatine process and the uvula, remained well united. The patient showed, the week after discharge, a further increase of 270 grams in weight. The weight of the child increased in the first six months of his life, assuming the correctness of the mother's statement, only 1280 grams; during the seventh month alone, in the first part of which he was operated upon, he increased 910 grams. Twenty-three days after operation, on Jan. 8, 1894,* I demonstrated this patient and the operative success to the association. On Feb. 1, 1894, the fistula was successfully closed. This is the same patient now a happy and well developed boy. The palate and uvula show entire union. The superior maxilla and entire face are free from anamalous or atrophic conditions and the upper teeth protrude normally over the lower. Most important of all, the boy, without any special training whatever, speaks absolutely normally without concomitant movement of facial muscles or nasal twang. The patient will now talk, declaim and answer questions. He is, as you hear, not only easily understood, but has an absolute, ideally, pure speech; not one usually termed "good," or "satisfactory," with still some discernable minor defects. It is impossible to detect the smallest speech defect which can remind the hearer of the former malformation. Such a satisfactory functional result has, without previous instruction in speaking, never been attained in any case where the early operation has not been performed. This case proves the life conserving and the life preserving utility of the operation, in accordance with the views of Gustav Simon and proves as well the possibility to accomplish the results intended by von Langenbeck and Billroth to attain normal functional speech by early operation without instruction or the use of a prothesis. Were this the only case of its kind, and not one of many, it would prove the weakness of the unfavorable opinion in regard to the early closure of the cleft palate expressed by Küster, Kirmisson, LeDentu, Delbert and Albert; on the contrary, the course of one such case as exhibited proves the neces-

*Sitzungsbericht d. Freien Vereinigung d. Chirurgen, Berlin 8 Jan., 1894. D. Med. Wochenschrift, 1894, V. B., p. 71. Compare Arch. f. Klin. Chirurgie, Vol. XLVIII, p. 839.

sity for further trial of the early operation, in order to attain always or as often as possible alike satisfactory results.

The second case, I wish to demonstrate, is a girl 6 years old, born with a cleft palate reaching to the alveolar process, which I operated upon when she was 18 months old, on January 20, 1896, when the flaps were loosened on both sides. The flaps were united on the 25th of January. The healing process was without febrile reaction and the patient was discharged on February 7th, in splendid condition of nutrition. The state of nutrition was good when admitted. A small fistula at the base of the uvula closed during the following days spontaneously. The cleft of palate and uvula are entirely closed. The superior maxilla, facial formation and position of teeth are entirely normal. The speech as you hear in answer to questions and in recitation is as ideally pure as in the boy just demonstrated. No one can in this patient detect the previous existence of an congenital cleft palate. I beg to recall in connection with these cases, the following cases of cleft palate reaching to the alveolar process in which the healing process as well as the operative and functional result, were as good or nearly as good as in the cases just exhibited.

I demonstrated a boy of seven and one half years to the congress of surgeons in May, 1893,* who was operated upon when 13 months old. This patient could, after two months instruction by H. Gutzmann, pronounce nearly all especially difficult words perfectly, without nasal twang and without distortion of facial muscles. At the same meeting I reported† upon another patient 6 years old who was operated upon when 15 months old, with absolutely perfect speech after two months of instruction in speaking. On Feby., 8th 1897, I demonstrated‡ a 9 year old boy to this association who was operated upon when 14 months old, with absolutely pure speech without any previous in

*Transaction d. Deutsch. Gesellschaft f., Chirurgie 1893, I. p. 28.

†Ibid d. Deutsch. Gesellschaft f. Chirurgie, 1893, I p. 28.

‡Transactions: Freie Vereinigung der Chirurgen Berlin, 1897 I. p. 32, D. Med. Wochenschrift, 1897, V. B. No. 26. Transactions of meeting: Berl. Med. Gesellschaft May 15, 1895, Berl. Kl. Wocheuschr, 1895, p. 465.

instruction whatever. The father of a 11 year old girl* operated upon in 1889, when 4 months old, recently reported that the speech of his daughter "is so satisfactory, that no one can notice the former defect, who does not otherwise know of its existence." This case was cured twenty days after making the flaps and a fortnight after their union and discharged with a complete closure of the cleft and perfect adaption of the uvula. During the twenty days of operative treatment, her weight increased from 5200 to 5680 grams, equaling 480 grams. It is necessary to discuss the cases of complete uni- and bilateral clefts of palate and lips and to prove that equally favorable healing process and equally good operative and functional results can be obtained even in these cases. So far as the healing process and operative success are concerned, I recall to you as examples of many other already reported or demonstrated cases, two operated cases demonstrated by me to the association in November, 1898, with unilateral complete clefts. In the first case, born March 4, 1897, with a complete cleft of palate and lip to the right of the median line, the hair lip was operated upon the following day. There was no fever and the cosmetic result was excellent.

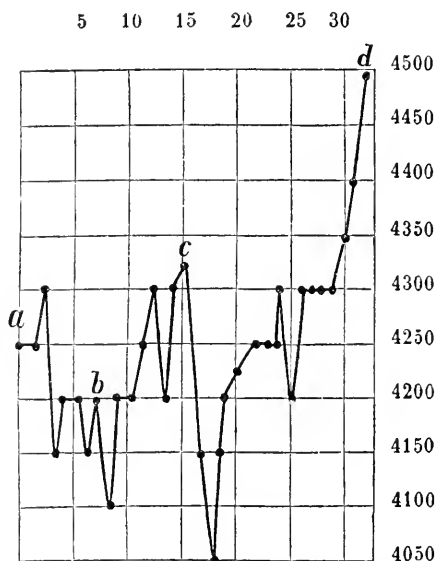
On May 28, 1897, at the age of less than 3 months, the right flap was loosened, seven days later the left one, and eight days later they were united. On the two days subsequent to the loosening of the first flap, on the day after loosening the other flap, on the day after uniting the flaps and again ten days afterward the temperature rose to 38-38.3; otherwise the temperature remained normal. The weight of the child before the operation was 4250 grams, it gained in thirty-two days 250 grams, weighing 4500 when the patient was discharged as cured. The greatest diminution in weight in one day amounted to 200 grams. (Compare daily weight record II). This patient I demonstrated on Nov. 1, 1898, to the association and the members satisfied themselves as to the perfect closure of the cleft, the splendid state of nutrition and the normal state of the upper jaw and facial formation.†

*J. Wolff, Die Naht der Spalten und Defekte des Gaumensegels ohne Durchsneidung der Gaumenmuskeln Centralbl. f. Chirurgie, 1890, p. 25, Case 2.

†Report of meeting: Freie Vereinigung d. Chirurgen, Berlin, Nov., 14, 1898. Deutsch. Med. Wochenschr., 1899, No. 21.

The other case demonstrated at the time, was born on Feby. 10, 1898, with a complete cleft palate and lip also to the right of the median line and was operated upon for the correction of the harelip when six weeks old. The healing process and the cosmetic result, were entirely satisfactory. On May 9th, at the age of 4 months, I loosened the right flap, on May 16th the left and on May 24th they were

II.

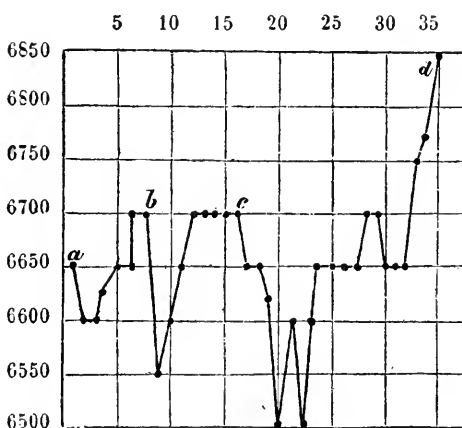


- a. Loosening right flap, May 28, 1897.
- b. Loosening left flap, June 4, 1897.
- c. United, June 6, 1897.
- d. Discharged from clinic, June 29, 1897.

united. On June 13th, thirty-five days after the initial operation, the patient was discharged with an increase of weight of 200 grams (6850 as against 6650). The greatest decrease of weight occurred on the third and fifth day after uniting the flaps, being 150 grams less than when admitted. (Compare weight record III.) The temperature exceeded 38° on the evening of first day after the initial operation and on the second and third day after uniting the flaps. Otherwise the temperature remained normal. Six months after the operation I demonstrated this patient in excellent state of nutrition, and perfect adaptation of

the cleft and uvula without apparent scar. A small depression near the anterior end of the cleft which gave the impression of a fistula, permitted neither the passage of a probe or of water on swallowing. As examples of successful early operations and cures of bilateral complete clefts of palate and lip, I beg to recall two cases demonstrated to you and other medical associations and reported in detail as cases of double harelip with snout-like bony protrusion between the maxillæ and complete cleft palate. In the case demonstrated* to the association, in 1897,

III.



- a. Loosening right flap, May 9, 1898.
- b. Loosening left flap, May 16, 1898.
- c. United, May 24, 1898.
- d. Discharged from clinic, June 11, 1898.

I loosened the flaps on the 9 months old boy on Jan. 12th, four days later the flaps were united. In the second case,† demonstrated to the surgical congress in 1894, I loosened the flaps on the 1 year and 11 months old boy on January 11th, 1894, and seven days later they were united. In both instances the operation was successful in closing

*S. T. Wolff: The operation of double harelip with snout-like intermaxillary protrusion, Berl. Kl. Wochenschr., 1897, No. 47. Transact. d. Freien Vereinig. d. Chirurgen Berlin. Meeting of Feb. 8, 1897. D. Med. Wochenschr. 1896, V. B., No. 25.

†Transactions: Deutsch. Gesellsch. f. Chirurgie, 1894, I, p. 139, Arch. f. Kl. Chirurgie. Vol. XL. VII. p. 841.

the entire cleft and the healing process was free of fever. In both cases, and especially in the latter child, which had lost much in weight, the operation produced a splendid improvement in the state of nutrition. (See adjoining daily weight record III.) I could greatly augment the number of successful cases of "satisfactory healing process and satisfactory operative result in early operations for incomplete, as well as for uni- or bilateral complete cleft palate, by including operations upon children between the third and fifth year, instead of restricting myself only to those of the first and second year. They suffice, however, for the purpose of conclusions upon the basis of my experience.

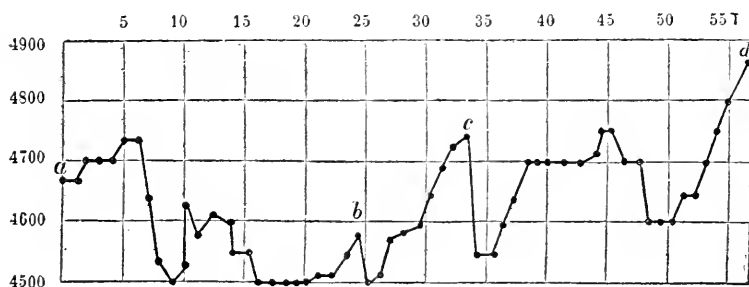
As a final example for the attainment of an excellent functional, as well as operative result in the early operation for complete cleft of lip and palate, I desire to report a case of a child now $5\frac{1}{2}$ years old, born with a harelip and complete cleft of palate and operated upon when 20 months old. At her present age, $5\frac{1}{2}$ years, in which special instruction in correct speaking is yet out of question, her speech is almost without fault. Dr. Hoffman, in Wiesbaden, operated upon the harelip of this child a few days after birth with excellent cosmetic result. In the following spring, I operated upon the cleft palate successfully, with exception of a small fistula which I closed the following fall. At a recent examination of the child, I noted, with pleasure, the excellent general state of health of the child and the purity of his speech. My hope to present the child to the association has not materialized. I can however, present a report by Dr. Hoffman on the present state of the child's condition. He writes: "The pronunciation of the child scarcely differs from that of any other child of the same age. All vowels and all consonants are pronounced perfectly, even difficult words she speaks as plainly as children of normal development. Only the intonation of some of the vowels in composite words reminds one, by a barely perceptible nasal twang, of the former existing abnormal condition. An uninformed layman can not notice either in the speech or the facial formation the immensely disfiguring total cleft of the lip and palate, with which the child was afflicted at birth. I hope that your audience may gain the conviction that the operation in early childhood, furnishes besides an excellent cosmetic effect, an ex-

cellent functional result, if your method of operating is followed."

For the purpose of throwing light upon several important questions in connection with early operation I wish to report upon four selected cases. The first two are cases which prove my contention that the union of the flaps remains intact as a rule in the relatively small proportion of early operations after my method, in which the healing process is not as favorable as in those before mentioned, i. e., the operative result may, in cases with high fever, remain as good as in cases without fever.

Wm. F., born with a complete left cleft of lip and palate, was operated upon on March, 1899, when three

IV.



a. Loosening right flap, May 9, 1899.

b. Loosening left flap, June 1, 1899.

c. United, June 10, 1899.

d. Discharged from clinic, July 3, 1899.

weeks old, for the relief of the harelip with excellent cosmetic result, and discharged with an increased weight of 400 grams after twelve days. On May 9th, at the age of 3 months, the right flap was loosened, the child weighing 4670 grams (compare weight record IV). Temperature in the evening 38.2° . The following six days were free from fever. From the seventh to fifteenth day, the evening temperatures reached from 37.9° - 39.1° . After eight days freedom of fever, on June 1, the left flap was loosened, the child weighing 4580 grams. This was followed for six days; by evening temperature of 37.9° - 38.7° . On June 10th, the flaps were united, the weight of the child being 4780 grams. On the second, third and fifth days thereafter, small rises

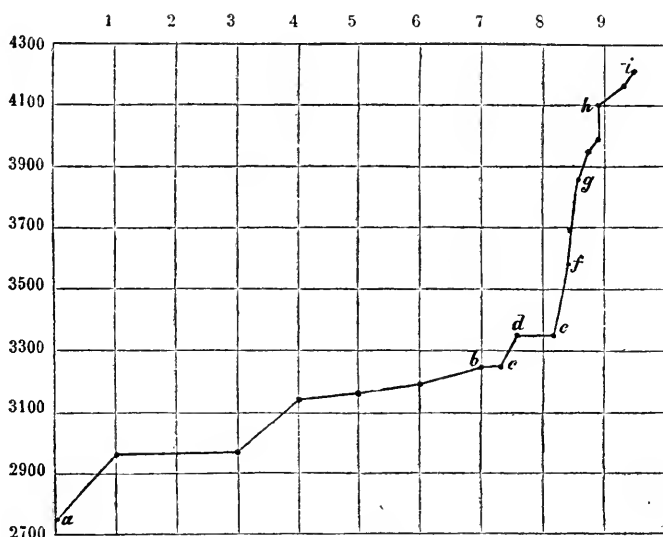
of temperature occurred from $38,0^{\circ}$ - $38,2^{\circ}$. On the tenth day a varicella eruption appeared. Temperature $38,6^{\circ}$. The stitches remained intact in the entire extent of the cleft. The child was discharged July 3rd, weighing 4850 grams. In March 1900, the patient again visited the clinic and it proved a source of pleasure to observe the complete union of the cleft of lip and palate and the flourishing state of health of the thirteen months old child.

The next case, a girl born April 14th, 1899, with a cleft extending forward to the alveolar border was admitted at the age of five and one-half months. On Sept. 28th, 1899 the right flap was loosened, the child weighing 5800 grams; on Oct. 2nd, the left flap was resected the child weighing 5850 grams; on Oct. 7th, the flaps were united, the child weighing 5950 grams. On the following day the temperature reached $38,2^{\circ}$ and varied considerably for five days reaching $40,1^{\circ}$. The child's weight on the sixth day after the fever began dropped to 5550 grams, the next six days evening temperatures occurred, three times reaching $38,2^{\circ}$ - $38,8^{\circ}$. After the 12th day the temperature remained normal. The stitches remained intact with exception of a fistula, the size of a pea, near the anterior end of the cleft. On Oct. 23rd the child was discharged, weighing 6000 grams, increase of 250 grams. In May, 1900, the fistula was closed operatively without febrile reaction. The child's condition at the present time is excellent and the cleft and uvula are completely united. The third case was especially unfavorable, inasmuch as the child presented, besides a complete right harelip and cleft palate, a congenital deficient mental development. The child had been weighed daily since its birth, for seven months, to the day of the operation and for this reason the proof of the life conserving and life saving importance of the successful early operation, can be deducted even more definitively than from the cases before mentioned.

Dr. Pinner, of Frankfurt, operated upon a child born June 16, 1899, successfully for relief of harelip a few days after birth. In February, 1900, the child was referred to me by Professor Flesch. In the first six months of its life, the child increased in weight only 500 grams and the state of nutrition was so miserable, that exitus letalis seemed not very distant. As little inviting, even with the

best operative result, as these conditions were, on account of the mental deficiency of the child, it was impossible to deny the parents the expressed desire to prevent, if possible, by operative procedure, the threatening danger of death. On Feb. 15th the right flap was loosened; on Feby. 21st, the left and on March 1st, they were united. During the last operative procedure, several suffocating attacks

V.



- a. Born, July 16, 1899, 2725 g.
- b. Loosening right flap, Feb. 15, 1900, 3250 g.
- c. Loosening left flap, Feb. 21, 1900, 3250 g.
- d. United, March 1, 1900, 3250 g.
- e. Discharged from clinic March 18, 1900, 3350 g.
- f. March 24, 1900, 3590 g.
- g. March 30, 1900, 3850 g.
- h. April 11, 1900, 3990 g.
- i. April 30, 1900, 4212 g.

occurred, though no anesthetic was used. In spite of the immense difficulties caused thereby, the hard and soft palate were successfully united. The two halves of the uvula were in this case, exceptionally, not pared or stitched in order to finish the operation more quickly. The evening temperature was 37,9 next morning 38,1°. Otherwise febrile reaction occurred at no time. The stitched edges of the wound remained adherent from the alveolar border

to the basis of the uvula. (See weight record with noteworthy ascent after the operation.) On March 18th, 1900, the child was discharged with a small increase of weight 3350 grams as against 3280. In the next six weeks the child increased to 4212 grams. The weight of the child, which increased during the first seven months of its life only 500 grams, gained, during the six weeks following the successful operation, 860 grams, with a corresponding improvement in the state of its general health. Attention is called to the sudden rise of the weight after successful closure of cleft.* (Weight record V.) Finally I desire to demonstrate a boy 2 years and 8 months old, whose case is of especial interest on account of a cleft of unusual width. The cast made by Professor Warnekross shows that the original cleft extended through the entire hard and soft palate and measured 3 cm. in length by 2.6 in breadth. The dimensions of the remaining portions of the palate from their edge to the border of the teeth measured posteriorly not more than 1,2; anteriorly not more than 1,4 cm. The free edge of the vomer protruded like a spine into the middle of the cleft. Excessive breadth of the cleft is not infrequently given as cause for considering such cases inoperable. This case presented one of the broadest clefts ever seen by me. The successful restitution proves that the remaining material is always sufficient to close the cleft, no matter how broad, if my method of procedure is adopted, even in the first year of life. In adopting my method of operating in several sittings in cases of unusually broad clefts we take advantage of the fact that the narrow flaps which, after the operation, are badly nourished regain after several days a better condition of circulation and nutrition. Before this is attained much hope of success cannot be entertained.

On the boy 10 months old I loosened the right flap on July 29th, 1899; on August 2nd the left and on August 5th the flaps were united. The lateral incisions gaped enormously but the stitches kept in tact along the entire hard and soft palate with the exception of the uvula where they

*The encouraging condition of the child at the time of the report to the free Vereinigung d. Chirurgen, Berlin, May 14th, 1900, did not last. In the beginning of June eclamptic attacks occurred causing the child's death, July 26th, 1900.

reopened. The lateral openings gradually contracted leaving a persistent fistula the size of a large pin head on both sides.

Fistulæ described in detail by Ehrmann* scarcely ever remain in cases of not unusual width, if operated upon at several sittings. On inspection the existence of a bifid uvula can only be detected by the use of a probe. The superior maxilla has a normal configuration and a normal width of 4,8 cm., corresponding to the age of the child. The position of the teeth are normal with exception of a slight posterior displacement of the second molar on both sides. The formation of the face is normal. The secondary operation for uniting the uvula has as yet not been performed and permits thereby an estimate of how much can be gained by the operation in the broadest of clefts in one attempt even when performed early.

On the basis of the demonstrations and consideration of the cases submitted and of my entire experience I shall make an attempt to fix the future value of the early closure of cleft palate, provided that the modification of the former procedure of urano-staphyloplasty introduced and recommended by me are followed.

These modifications briefly consist in the greatest possible saving of blood by methodical compression of the palate, in securing good illumination, by having the patient in Rose's position; in the highest degree of asepsis possible in operations in the oral cavity; in the painstaking and thorough loosening of the broadest and thickest possible flaps of the muco-periostal covering of the palate, using meanwhile continual compression with the index finger of the free hand; in the thorough detachment of the loosened flaps by introduction of the little finger under the flaps and carefully breaking down all connections remaining after the instrumental detachment; in the absolute preservation of all the palatine muscles by avoidance of lateral incisions in the palate; by operating in two or three sittings; in the use of the silk-silver suture for stitching the flaps in the region of the soft and hard palate; in uniting the anterior and the posterior edges of the uvula

*Ehrmann, Sur des fistules latérales du palais consecutive à l'urano-sphyloorrhaphie, Paris, 1897. Bull. de l'Academie de medicine I, XXXVII, No. 21.

with fine silk threads; in omitting to pack the lateral incisions or covering the stitches with iodoform-collodion; in operating with specula and needleholders especially adapted to the small field in early operations; finally in the careful supervision of the condition of the child after the operation by frequent tests of temperature as well as by daily weighing of the patient.*

An estimate of the value of the early closure of the cleft palate is gained by the consideration of the following propositions:

1. The difficulties of the early closure of the cleft.
2. The probabilities of a favorable operative result in the early operation.
3. The danger to life from the early operation for closure of cleft.
4. The life saving value of the successful early operation.
5. Other special benefits conferred by the successful early operation.
6. The question of a possible harmful influence produced by the early closure of cleft on the subsequent development of superior maxilla and face.

1. *The difficulties of the early closure of the cleft.*

The adoption of the above detailed method and especially the use of suitable instruments make the difficulties of closing the cleft in early childhood no greater, as has been assumed, than in adults; on the contrary the operation is decidedly less difficult, because the saving of blood by methodical compression of the small blood vessels of children succeeds incomparably easier than in the vessels of larger lumen of adults and because the detachment of the muco-periosteal lining of the hard palate is more easily performed in the loosely connected tissue of children than it is in adults.

2. *The probabilities of a favorable result of the early operation.*

Were the probabilities of success simply in proportion to the lessened difficulties of the operative procedure, the number of failures should, after what had been said,

*Compare latest articles concerning these measures in: Eulenburg, Realencyklopaedie 3rd Edit. Vol. XXV, 1900. Uranothaphylost-plastic. Also: The suture of clefts and defects of the palate without severing of the palate muscles. Centrbl. f. Chirurgie, 1890, No. 26.

TABLE NO. I.

Age of Children.	Number of operations from 1872 until April, 1894.	Number of operations from April, 1894, until Oct., 1900.	Total.
1-6 months	29	38	58
7-23 months	27	27	54
2-3 years	16	25	41
4-6 years	22	17	39
7-14 years	46	21	67
15-52 years	29	23	52
Total	169	151	311

TABLE II.
Operated from 1872 until April 1894.

Age of Patient.		Per ct.		Per ct.		Died.	Total.
1-6 months	4		5		7	4	20
7-35 months	14	34.6	10	63.4	5	3	32
3-6 years	14		14		3	2	33
7-52 years	46	55.5	24	90.7	5	—	75
Total	75		53		20	9	160

TABLE III.
Operated from April, 1894, until October, 1900.

Age of Patient.		Per Ct.		Per Ct.		Died.	Total.
2-6 Months	22		8		4	4	38
7-35 months	27	72.1	7	84.2	3	1	38
3-6 years	22		7		2	—	31
7-32 years	39	81.3	4	96.0	1	—	44
Total	110		26		10	5	151

be of rarer occurrence in children than in adults. A comparison of the appended tables shows however, if the results on children under three years be compared with those of over three years that such is not the case. In the class of patients over three years the percentage of successes was greater than in the lower class. The cause is found to be the more frequent occurrence of fever in tender children, even after the most careful and aseptic operative procedure, while in adults a febrile reaction is very rarely noted. Loosening of one or more stitches, occurs in a small percentage of cases naturally oftener with than without fever. It is, however, of interest to note that this percentage which was considerable in the operations performed until six years ago has since that period become very considerably smaller.

Table 1. The ages of the 311 patients operated upon from 1872 to Oct., 1900. 160 cases were reported in 1894;* 151 cases have been operated upon since.

Table 2. The operative result of the first series of 160 cases in children of less than three years was 34.6 per cent. with primary success and 63.4 per cent. with secondary operations; in patients of over three years primary union was attained in 56.5 per cent. with secondary operations in 90.7 per cent.

Table 3. The result of operation in the second series of fifteen cases in children of less than three years shows 72.1 per cent. primary and 84.2 per cent. secondary cures; in patients over three years 81.3 per cent. primary and 96 per cent. secondary, favorable results.†

3. *Dangers to life from the early operation for closure of cleft.*

The quoted opinion of Trélat, who said that the early operation amounted nearly to the addition of a certain cause of death to only probable causes, has until now dominated surgical opinion. The following tables of mortality of the early operations performed prove the

*Arch. f. Klin. Chirurgie, Vol. XLVIII, l. c.

†Concerning the successful closure in a single operation in cases of complete cleft of very young infants compare the above cited case of two months and four months as well as the two cases of hairlip and complete cleft with snoutlike inter maxillary protrusion.

absolute fallacy of Trélat's opinion. The results of a Bergmann* who operated upon nine children of 1¼ to three years of age without a death, furnish similar proof.

As to my own operations I again submit for the purpose of comparison the mortality table of my first series of 160 cases of uranoplasty published in 1897. This table includes the cases of mortality which represents the cost paid in the attempt to lower the dangers of the very early operation.

TABLE IV. (From April, 1894, to October, 1900.)

Age of the patients	Number of patients	Deaths	Per cent.	Number of operations	Deaths	Per cent.	Number of operations	Deaths	Per cent.
1 and 2 months	7	1	14.3	20	4	20.0	47	7	14.8
3 and 4 months	7	2	28.5						
5 and 6 months	6	1	16.6						
7-11 months	11	1	9.1	27	3	11.1			
12-17 months	8	2	25.0						
18-23 months	8	0	0						
2 years	5	0	0	38	2	5.2			
3 years	11	0	0						
4 years	6	1	16.6						
5-6 years	16	1	6.2						
7-14 years	46	0	0	75	0	0			
15-52 years	29	0	0						
Total	160	9		160	9				

The percentage of mortality in this series of children of less than 2 years reached, in 48 operations, 14.8 per cent. Among them were 20 patients of 1 to 6 months of age

*(Proof addition: Vide case of Tavel at end of article.)

with a mortality percentage of 20 per cent. and 27 patients of 7 to 23 months with 3 deaths = 11 per cent. Of 38 patients from 2-6 years 2 died = 5.2 per cent. and of 75 patients older than 7 years none died. More important for the proper estimate of the dangers of the very early operation at the present time is table V, which compares 151 patients operated upon since April, 1894, under observance of all the particular measures for the operation of uranoplasty mentioned above. This table shows that no

TABLE V. (From April, 1894, October, 1900.)

Age of the patients	Number of operations	Number of deaths	Per cent.	Number of operations	Number of deaths	Per cent.	Number of operations	Number of deaths	Per cent.
2 months	14	2	14.3	38	4	10.5	67	5	7.4
3 and 4 months	14	1	7.1						
5 and 6 months	10	1	10.0						
7-11 months	9	0	0	29	1	3.4			
12-17 months	12	0	0						
18-23 months	8	1	12.5						
2 years	11	0	0	40	0	0	84	0	0
3 years	13	0	0						
4 years	7	0	0						
5 and 6 years	9	0	0						
7-14 years	21	0	0	44	0	0			
15-32 years	23	0	0						
Total	151	5		151	5		151	5	

mortality occurred in the 24 operations on children of 2 and 3 years of age; of all 16 children operated upon at the age of 4-6 years, and of all 44 patients of 7-32 years none died from the operation. Among 29 operations on

childred of 7-23 months 1 fatality occurred and this in one of the older children of this class.

In this particular child of 19 months no fever occurred after loosening the flaps. Six days afterward the flaps were united. Two days afterward the child was taken with high fever, bronchitis and diarrhea. The stitches reopened and the child died 10 days after uniting the flaps.

Of 14 operated children of 2 months, 2 died = 14.3 per cent.; of 14 operated children of 3-4 months 1 died; of 10 operated children of 5 and 6 months, 1 died; in all of 38 operated childred of 2-6 months of age 4 died = 10.5 per cent. mortality. The figures of this table show that the operation of urano-staplyloplasty is in children of over one year of age devoid of nearly all those dangers if performed in the described manner, which the operation was supposed to possess in children of this age. Even in children of 2-6 months the dangers of the operation have been enormously lessened. The danger to life of the child of this age from the operation has decreased to such an extent, that at present we lose only one child in 10, while Gustav Simon expressed the opinion that the operation was to be recommended if only one in 10 children could be saved.

We possess no statistical information of the mortality of children born with cleft palate and not operated upon. Gustav Simon estimated their mortality to be 90 per cent. which in my own opinion and experience seems quite excessive. It appears certain, however, that the mortality largely exceeds 10 per cent* especially in the first six months of life. The conclusion is justified therefore that the life of children born with a cleft palate and left unoperated is in the first six months far more in danger than those operated upon by my method. It is not unlikely that further improvement of the operative technique will lower the mortality to less than ten per cent. By operating on healthy children only the mortality might be lowered to naught per cent.; such results cannot be expected, when the operation is performed for life saving reasons on children whose general condition is greatly lowered through the influence of the deformity.

*L. Hoffa: Zur Mortalität der operirten Hasenscharten und Ga-
enspalte Arch. f. Kl. Chirurgie, Vol. XXXIII, p. 548 ff.

4. *The life saving value of the early successful operation.*

As against the mortality of 10.5 per cent. in operations on children of less than six months old (table V) the numerous, very great advantages accruing to those who have been successfully operated, might be taken into account in considering the propriety or the value of the operation for the early closure of the cleft. As the most important gain must be considered the saving of life by the successful operation as expressed by Gustav Simon, especially of children whose life is endangered by the inroads made on their general condition in consequence of the malformation. By daily weighing of the operated children the direct life saving influence of the operation can be demonstrated. Weight records as demonstrated this evening have been published in Arch. für Klin. Chirurgie of 1894.

Le Dentu and Delbet have quoted my own mortality tables, as an argument against the early operation. They considered the early operation for closure of cleft palate permissible only, if no death had ever occurred from the operation. This conception can by no means be approved. In all operations, which, with a favorable result, are lifesaving, the possibility of an occasional unfavorable result must be considered. Surgical opinion, for example, in regard to necessity for operating on a harelip soon after birth, has not altered, though the mortality in this operation is as yet in different hospitals 38 per cent. in the first year of life.* Even if the objections of Le Dentu and Delbet were pertinent, they would only apply to the group of children of less than 6 months of age and cannot apply to operations on those beyond one year. The operative mortality in the first 6 months of life is amply balanced by a favorable healing process in the great majority of operations† and especially by the frequently life saving value of the successful operation as shown in the weight records.

*I take occasion again to call attention to the fact, that the mortality from operations on harelip, can be reduced from 38 per cent. to nearly 0 by the use of my method of digital constriction, which has not found sufficient recognition, though several times published and recommended. Comp. J. Wolff "Hasenscharte" in Eulenburgs Real-Encyclopaedie, third Edit., Vol. X., 1896.

†Compare the above cited cases.

5. *Other Special Benefits of the Successful Early Operation.*

By successful closure of the cleft, the inhalation of dust-free-air into the lungs in all cases is accomplished as well as the exclusion of food particles from the nasal chambers. As a result, the respiratory and digestive functions improve and the accompanying complications and atrophic pharyngeal catarrh subside. It is evident that these benefits are most pronounced when conferred in early years, as their absence rarely ever endangers the life of adults, but very frequently of children. The reconstruction of the palate in early infancy brings about by preventing the insufficient development of the palate muscles, necessary to the closure of the naso-pharyngeal isthmus, such improved conditions for normal speech in later life, as can never be achieved by operations in late childhood or on adults. By early operations a complete functional result can, as a rule, be attained without special instruction or the use of a prothesis, and all the hopes as to perfect speech in later life based by Langenbeck and Billroth upon the early operation may be realized. The favorable influence of the successful operation upon the later psychical condition of the patient is more pronounced if the reconstruction of the palate has been successful in early childhood. The operation saves the child, not only from the mortification they inevitably have to endure at school, at the hands of other children, but from ever appreciating the immensity of the misfortune or the pitiable condition to which their inheritance would have doomed them, had they not, as said by Koenig, "been made into human beings" by the operation.

6. *The question of possible harmful influence produced by the early closure of the cleft on the subsequent development of the superior maxilla and face.*

Ehrmann, of Mühlhausen, an eminent and experienced operator and observer in this field of surgery, believes he has observed a retarded development in breadth of the superior maxillae in many cases of early operation of complete harelip and cleft palate in which after the operation long continued suppuration and non union occurred. The measurements taken by Ehrmann on the patients themselves or on casts of the palate of patients upon which he basis his views do not bear out this fact. Ehrmann has compared the figures of his measurements with the results of measurements of normal individuals, but not as he should have done with the results of measurements of adult patients with congenital cleft palate, who had not been operated upon, in whom the lateral facial develop-

ment is often without previous operation deficient.* Other authors, among them Kirmisson and Le Dentu, extend Ehrmann's conclusions of deficient lateral development of the superior maxillae after the operation, to all cases of early operations. They applied his conclusions to all cases of incomplete cleft, or to clefts affecting only the soft palate, or the soft and a part of the hard palate and to all cases in which the early operation had been successful and without prolonged suppuration. They also supposed that a facial disfigurement must accompany the supposed insufficient lateral development of the superior maxillae. Inasmuch as the authors contending for these views do not stand on their own observation but on Ehrmann's, and inasmuch as Ehrmann has made no such claims, the necessity for their disproof does not exist. No case operated upon by me can, in any sense, furnish support to the fear of deficient superior maxillary or facial development after early operation. The superior maxillae of the children operated upon and now fairly grown shows no differences in breadth from the measurement of superior maxillae of patients of the same age who have not been operated upon, nor even any considerable variation from the breadth of the superior maxillae of normal individuals. In no case can a facial deformity, due to a probable insufficient development of the superior maxilla be recognized.

Received while the foregoing was in print:

Prof. Tavel, of Bern, also reported in Jan., 1900, a successful case of very early operation after my method. On Nov. 16th loosening of both flaps on an 11 months old boy, who was born with cleft palate of 1 cm. in width extending through soft palate and posterior half of hard palate. The boy has suffered since, both from digestive troubles and catarrh of pharynx. State of nutrition good, face pale. The operation was performed under chloroform narcosis and Rose's position, methodical digital compression, using Wolff speculum. The flaps were loosened until they could easily be crossed. The loss of blood was minimal. Within the next three days highest rectal temperature 38°. On November 21st the flaps were again loosened, the edges of the cleft resected and stitched together, minimal loss of blood. The boy took milk on the same day without manifestation of pain. Nov. 22nd the lateral gaping openings appeared much diminished. On Dec. 1st stitches were removed; primary union of cleft and closure of lateral incision. In Jan., 1901, the child was demonstrated to the Medical Association of Bern.

*Arch. of Klin. Chirurgie, Vol. XLVIII, l. c.

ABSTRACTS FROM CURRENT OTOLOGIC, RHINO- LOGIC AND LARYNGOLOGIC LITERATURE.

I.—EAR.

Erosion of the Carotid by Cholesteatoma.

HEINE. (*Berliner Otologische Gesellschaft*, May 14, 1901.) In an operation upon a fifty-six year old woman he found a large opening which reached into the vestibule. Upon dressing the case later, he observed a severe hemorrhage in the depth of the wound which was stopped by tamponing, but which recurred later.

The requisite tamponing was followed by secondary sepsis. On autopsy a defect was found in a narrowed carotid, the walls of which were thickened.

Freidel remarked that in carcinoma of the ear hemorrhage from the carotid which could not otherwise be stopped, was prevented generally by this same thickening of the walls.

Lery.

Anatomic Observations upon Tumors of the External Ear.

FRANZ, ALEXANDER. (*Zeitschrift für Ohrenheilkunde*, Bd. 38.) Tumors of the external ear are relatively uncommon, at least in the literature of our specialty few papers are to be found, since the greater number of cases go to the surgeon. Haug, alone, has made an exhaustive study of them. The writer has examined 15 cases in the Strassburg clinic, both clinically and microscopically, finding there fibromata, one tuberculous granuloma, one angioma, three endothelioma and five carcinomata. Especially interesting was the examination of the endotheliomata; the writer thinks that their origin is to be found in a growth of the endothelium of the lymphvessels. A striking feature of these tumors is the characteristic hyaline degeneration of the connective tissue. The tuberculous tumor resulted from infection after piercing the ears. The writer divided the carcinomata into those originating from

the skin and those from the glands. However, the microscopic examination gives only a proximate certainty as to which of these two is the original cause of any particular tumor.

Levy.

Three Cases of Otitic Septic Sinusthrombosis Healed by Zaufal's Operation.

BLOCH. (*Prager Med. Wochenschrift*, July 25, 1901.) In the first case, incision into the sigmoid sinus resulted in a flowing of dark blood, the source of which could not be determined. The wall of the sinus was pathologically altered, covered with granules, and thickened. This external phlebitis probably gave rise to an internal phlebitis with formation of thrombi, by which the infectious material was carried further through the blood system. Ligation of the internal jugular vein resulted in cutting off this source of infection for the circulation.

In the second case there was a typical picture of purulent thrombosis of the sigmoid sinus, which extended through the bulbus jugularis to the internal jugular vein. In the third case the sigmoid sinus was found nearly empty on incision, and the thrombus probably was situated at the union of the sigmoid sinus with the transverse sinus and also in the bulb of the jugular vein. The interior sinus wall was covered with granulations, and thickened. There was thus an associated external and internal phlebitis.

Zaufal states his position as to the question of ligation of the jugular vein as follows. Where the diagnosis of septic sinus thrombosis has been made before the operation, the jugular vein should always be ligated previous to opening the sinus.

If a septic thrombosis of the sinus is found first at the moment of opening the sinus, the jugular should be immediately ligated before further evacuation of the sinus is undertaken.

Goodale.

Hemorrhages from the Ear in Hemophilia.

TOMKA. (*Ungarische Medizinische Presse.*) The writer reports a case of a child two and a half years of age in whom it was necessary to perform paracentesis of the drum membrane. Seven days after the operation, while inflating the ears, a violent bleeding occurred from the ear, which persisted in spite of all therapeutic measures

for eight days. After cessation of the hemorrhage, healing followed rapidly. *Goodale.*

Intentional Perforation of the Drum Membrane.

TOTH. (*Ungarische Medizinische Presse*, March 10.) This procedure is stated to be fairly common in Hungary for the purpose of avoiding military service. The soldiers frequently seek to explain the injury on the ground of being struck by an officer upon the ear, and the writer gives the differential diagnosis between perforations produced by a box on the ear and those caused by puncture. *Goodale.*

Cerebral Abscess; Operation; Recovery.

FLETCHER GARDNER, Bloomington, Ind. (*Medical Record*, Aug. 3, 1901.) The patient, 21 years old, had had a chronic suppurative ear since childhood. Acute symptoms coming on, an ordinary mastoid operation was performed, following which there was paraphasia with nearly complete word and letter blindness and total agraphia. The paraphasia becoming more complete, and the pulse dropping to 50, with ptosis of the left eyelid and paresis of the right foot, an operation for abscess of the cerebrum was performed, trephining being done one and a quarter inches behind and above the external auditory meatus. Pus was found at a depth of one-half inch. When the button of bone was removed the brain bulged into the opening but did not pulsate. The opening was made in the line of the axis of the temporosphenoidal lobe, and some two ounces of foul pus evacuated. The cavity was washed out and the usual after-treatment applied. Recovery was complete and uneventful, the motor aphasia being the first to improve, and later the word blindness disappeared. The author thinks that aphasia in the presence of ear disease calls for exploratory trephining. *Richards.*

Progressive Hardness of Hearing and Its Arrest by Surgical Removal of the Incus.

CHARLES H. BURNETT, Philadelphia. (*Philadelphia Medical Journal*, Aug. 17, 1901.) The author regards the ears as being very closely correlated areas, and thinks that a cross influence for good or bad passes from one to the other. The fact that first one ear and then the other is affected by progressive deafness in the course of

a year or two seems to indicate that the implication of the second ear is dependent upon the cross influence of the ear first diseased. He has noticed that in progressive hardness of hearing a partial paresis occurs in the half of the velum palati nearest the more affected ear, in consequence of which the opposite half of the velum draws the uvula toward the better ear. He has noticed that the operation for liberation of the impacted stapes—the removal of the incus, while improving the hearing of the affected ear but little, did not diminish the hearing, and that the deafness has not occurred in the opposite ear, or if the process had begun there it was arrested, and he considers that in any instance of progressive deafness, especially if the hearing be defective in both ears and tinnitus aurium be present in the more affected ear, removal of the incus is the only means of relief of the deafness and tinnitus. It will also arrest the progress of the disease in the better, though defective, ear and ward off tinnitus and other conditions conducive to ear vertigo.

The operation is done under ether anesthesia and good illumination. With a small delicate knife an incision is made close behind the short process of the malleus and following closely the periphery backward and downward until reaching a point below the line drawn horizontally through the umbo. This flap is pushed inward toward the promontory. If there is no bleeding, the incus-stapes joint is now seen. The incus is next gently disarticulated from the stapes by drawing it outward and downward by means of an incus hook passed behind its long limb, which should then be grasped by special forceps and drawn very cautiously downward and outward into the outer canal and removed entirely from the ear. The operation is now finished. A pledget of sterile cotton is put in the canal. There is no after treatment and seldom any reaction. Between 1888 and 1892 the author operated upon 25 cases for progressive hardness of hearing, and thinks that the results have justified the operation.

Richards.

Formalin in the Treatment of Suppurative Otitis Media.

NATHAN G. WARD, Philadelphia. (*American Medicine*, June, 1901.) The author has found a solution of five grains to the ounce efficient in destroying odor and

causing the cessation of the discharge. It protects against the formation of granulations, promotes healing of the ulcerated surfaces, and retards, but does not entirely prevent, necrosis of bone. *Richards.*

A Case of Antrum Infection and Sigmoid Sinus Thrombosis without Present Middle-Ear Disease, Presenting the Symptoms of Facial Neuralgia and None of the Ordinary Symptoms of Disease in the Petrosa; Retropharyngeal Gravity-Abscess, General Sinus Thrombosis without Much Impairment of Cerebration; Death after Three Months.

BAYARD HOLMES, Chicago. (*American Medicine*, June 1, 1901.) A case of rigor and high temperature beginning without apparent cause, with neuralgia of the right fifth nerve, which lasted 10 days, and was followed by a typhoid or septic condition covering a period of six weeks and somewhat resembling sinus thrombosis. No exploration of the sinus was made. Partial recovery took place, when an abscess containing some three ounces of pus appeared in the right pharynx followed 11 days later by another abscess on the left side of the pharynx. Hearing was good in both ears; there was no aural discharge and no mastoid tenderness; only an edematous pharynx being apparent. Later patient had frequent little chills. The abscesses continued to form in the pharynx. Finally pain was complained of in the left ear, followed the next day by a discharge of pus from the right ear. Three days later there was a right hemiplegia followed by convulsions. A diagnosis of abscess of the motor cortical area for the right leg and foot was made, and the left hemisphere of the brain opened by trephining, and the brain explored with an aspirating needle. No pus was found. The wounds healed, and the patient was conscious and able to transact business. Death occurred four days later.

At the autopsy the blood vessels of the dura and pia were found thrombosed over at least 6 cm. of the upper surface of the left hemisphere nearest the longitudinal sinus, and this was filled with a suppurating thrombus and had a number of flakes of suppurating fibrin along its lateral walls. Both lateral and both sigmoid sinuses were full of pus and blood, the right distinctly fluid.

This case is of special interest as illustrating the great difficulty of diagnosing disease of the antrum or mastoid-

its. The author thinks that the pharyngeal abscesses were subsequent to the sigmoid sinus thrombosis and infection, and that the consultants in the case were led astray by the absence of positive ear and mastoid symptoms.

The author regards mastoid antrum disease as the appendicitis of the head, and says that in every case of infection in which some other source of infection cannot be demonstrated, the mastoid antra should be explored.

Richards.

The Treatment of Acute Otitis Media.

FREDERICK L. JACK, Boston. (*Philadelphia Medical Journal*, Oct. 5, 1901.) The author divides the condition into two stages, the first in which there is a hemorrhage or congestive condition with slight if any bulging of the drum membrane.

The second in which there is a secretion of fluid collection in the middle ear with bulging of the drum membrane.

In the treatment of the first stage we seek to keep open the Eustachian tube, either by means of the Politzer bag or the Eustachian catheter.

Post-nasal treatment must be used in addition.

The second stage having been reached, no delay must be entertained in performing paracentesis.

[Reviewer's Note.—The necessity for early incision of the drum membrane cannot be too strongly emphasized, as it is by this means that not only is there less liability of impairment of hearing following, but the likelihood of mastoidal or intracranial complications are materially lessened.]

Seymour Oppenheimer.

The Diagnostic Significance of the Rhodan Reaction of the Saliva in Ear Diseases.

EDWIN JURGENS (*Monatschr. für Ohrenheilk.*, Vol. XXXV) has, by reason of the observation of Dr. Muck, assistant of Körner, examined the Rhodan reaction of the saliva in a large number of cases of ear suppuration. If a freshly cooked paste and a saturated watery solution of iodic acid is added to the saliva of a healthy man a blue color results. If an acid solution of chlorid of iron is added to normal saliva a dark red coloration is observed. The writer used the first method. In order to obtain the saliva from each parotid, he placed a cotton tampon upon the buccal surface of the corresponding side for ten

minutes, and then poured upon it three grams of a thick paste and a half gram iodic acid solution. On the basis that a middle ear affection must influence the chorda tympani and Jacobson's nerve which supply the parotid, he shows the reaction in middle ear suppuration. In a large number of cases he found that upon the diseased side the reaction was either negative or slightly positive. In other cases the reaction was stronger although they were operative cases. The writer thinks that in these the region of the nerve was slightly affected. In another series of cases they decided upon a favorable prognosis by reason of the positive reaction; this was confirmed by the further course of the disease. At any rate these observations deserve a further study. *Levy.*

Carcinoma of the Ear.

TRIETEL, Berlin. (*Archives of Otology*, Vol. XXX., No. 3.) The infrequency of this condition is evidenced by the report of Bezold. In 20,000 ear cases he observed carcinoma but four times. The author reports in detail the history of three cases, which present several features of interest. The limitation of all the tumors by the dura corroborates a point made by Kretschmann, that tumors often reach the dura but seldom perforate it. There was almost complete obliteration of the sigmoid sinus, and the carotid terminated in the tumor mass, at the base of the skull. This obliteration must have developed very slowly, as there was never any congestion to indicate a rapid obstruction.

In one case early paralysis of the recurrent laryngeal nerve was brought on, probably, by pressure of the enlarged glands of the neck.

Early recognition and early radical operation are demanded. In one of Kuhn's cases there had been no return six years after the removal of the membranous ear canal and auricle for cancer of the ear. When the mastoid cells are encroached upon, operative measures only tend to hasten death. *Campbell.*

Tympanic Vertigo Due to Obstruction within the Eustachian Tube.

BRANDEGEE, New York. (*Archives of Otology*, Vol. XXX., No. 3). Patients suffering from labyrinthine involvement due to tympanic change, usually give a history of frequent colds in the head, temporary impairment of hearing, stuffy

sensations or tinnitus in the ear and finally a gradually progressive deafness. In such cases a thorough functional and physical examination should be made and the Eustachian tube examined by catheter and auscultation tube.

The lower tone limit, in these cases, is raised while the upper tone limit remains practically normal, except in cases where the labyrinth is greatly involved, when the upper tone limit is lowered.

On account of the absorption of air within the tympanum, the atmospheric pressure from without drives the ossicular chain inward and thus a mechanical pressure is directly conveyed to the membranous labyrinth. The vertigo thus occasioned was so severe that, in one case, that of a physician, he scarcely dared to go out of doors. He could not cross a street without help, and he was obliged to have some kind of support when he assumed an upright position.

In a second case, that of a woman, confinement to bed was necessary the greater part of the time. On attempting to rise she would pitch over.

A third case was a man who could only walk in a dragging and halting manner with the support of a cane and leaning on the arm of a friend.

In each of these cases and in a series of fourteen cases, dilatation of the strictured Eustachian tube by electrolysis and catheter inflation gave complete relief.

The electrodes used were those devised by Duel. The average amount of current was three milliamperes used for three minutes, twice weekly. Catherization should not be employed for at least forty-eight hours after treatment. The physician must be sure that the electrode has been passed into the tympanum before he discharges his patient, because not infrequently the stricture is met with only at the tympanic orifice.

Campbell.

Functional Significance of the Round Window.

FRUTIGER, Basel. (*Archives of Otology*, Vol. XXX., No. 3.) The author's opinion is that, normally, conduction through the round window does not come much into account, but that this window is a protective apparatus for the ear, a yielding wall for the vibration of the labyrinthine fluids.

Pathologically, however, the conditions are quite different. When hearing through the chain of bones is ex-

cluded, but where nevertheless, some hearing remains, the round window may act vicariously in conducting sound to the labyrinth.

Whenever the oval window is greatly altered pathologically, and the lower tone limit much reduced, hearing for bass tones can be improved by using tampons to the round window membrane. This membrane, therefore, seems also to conduct sound from the tympanum to the labyrinth; under normal conditions, however, only such higher tones, perhaps from the small octave (inclusive) upward.

The round window serves, normally, but chiefly in conjunction with the two aqueducts, to regulate the variations in tension of the labyrinthine fluids, namely, in case of wave movements produced in the labyrinthine fluids by tones passing through the chain of ossicles and in sudden shocks produced against the chain of bones by direct or indirect force.

Campbell.

Operations on the Mastoid in Constitutional Disease.

BARTH, Brieg, (*Archives of Otolology*, Vol. XXX., Nos. 4 and 5.) A.—A case of mastoiditis in a diabetic subject.

A man, age 64, gave a history of a double iritis one year previously. Examination of urine at that time showed 4 per cent. sugar. Dieting had reduced the sugar to 2 per cent. when he came under observation with acute suppuration of the left ear. The mastoid lip was tender. Temperature 100.4° F. Local cold, rest in bed and frequent ear irrigations were employed. Two months after coming under observation, the posterior membranous wall of the auditory canal gave way, discharged pus, and through the sinus necrotic bone could be felt. Operation was not undertaken for another two months when after a few strokes with the chisel almost the entire posterior bony ear canal came away together with a sequestrum as large as a bean. The wound healed slowly but without complication. Chloroform was used for narcosis.

B.—A case of suppurative mastoiditis; operation; process of repair interfered with by gout.

On the second day following operation, without preceding chill, the temperature rose to 103.6° F. and pulse to 100. The wound became very sensitive to pressure. The metatarso-phalangeal joint of the left big toe was much swollen and the skin over it tense and reddened.

The swelling and tenderness in the wound disappeared with the disappearing toe symptoms. In the following weeks the patient had milder gout attacks, and with each, the edges of the mastoid wound became sensitive and red-dened.

C.—Tuberculosis, middle-ear and mastoid suppuration occurring simultaneously with pulmonary tuberculosis, operation, recovery.

A man, aged 21, suffered from an attack of pharyngitis; following this, and without pain, the left ear began to discharge pus. Afternoon temperature 102° F. Over the upper right lobe of the lung, dullness on percussion and prolonged bronchial expiration. No cough. On account of the profuse otorrhea and afternoon rise in temperature the mastoid was opened and the antrum cleaned of pus and granulation tissue, in which were found tubercle bacilli.

For the next two months there was no material change in the patient's condition. Then a left peritonsillar abscess developed, was incised and drained. This proved a turning point in the case. Temperature returned to normal and otorrhea ceased.

The author is inclined to believe that the primary focus of disease was in the mastoid. *Campbell.*

The Histology of Aural Polypi.

BRUHL, Berlin. (*Archives of Otolology*, Vol. XXX., Nos. 4 and 5.) Aural polypi, which had better be called polypoid granulations, owing to their anatomic similarity to inflammatory tissue formations, contain in addition to epithelium, the following variety of cells:

1. Polynuclear leucocytes.
2. Mononuclear leucocytes.
 - (a) small (lymphocytes).
 - (b) large.
3. Formative cells of connective tissue (fibroblasts).
4. Formative cells of the blood-vessels.
5. Giant cells.
6. Unna's plasma cells.
7. Mastzellen (fatty granular cells).

The epithelium may be cylindrical, squamous or mixed.

The mother tissue characterizes the polypus but not its envelope. *Campbell.*

On Otogenous Meningitis.

COHN, Breslau, (*Archives of Otology*, Vol. XXX., Nos. 4 and 5.) Following chronic middle ear suppuration, according to the author's experience, extension of the inflammation through the labyrinth is the more frequent, either after destruction of the fenestral membranes, perforation of the semicircular canals by cholesteatoma, carious processes or by extension of the pyogenic germs along the nerves, aqueducts and veins into the arachnoid cavity.

The clinical diagnosis of otogenous meningitis is often impossible. The diagnosis is sure if lumbar puncture demonstrates, by microscopic and chemical examinations, pus in the cerebro-spinal fluid. Recovery is possible but always exceptional.

The author gives in detail the histories of five fatal cases.

Campbell.

A True Cholesteatoma in the Posterior Cranial Fossa, Infected by Middle Ear Suppuration. Operation. Recovery.

KORNER, Rostock, (*Archives of Otology*, Vol. XXX., Nos. 4 and 5.) A man, aged 41, had suffered for years from severe headaches, which, beginning in the back of the neck, extended over the whole left side of the head. Recently he had left otitis media suppurativa but the discharge has now ceased. The Mt. is dull and thickened, somewhat bulging and reddened posteriorly. Puncture brought only blood and serum.

Midway, between the left ear and the occipital protuberance, there is a somewhat soft, flattened swelling about one and one-half inches in diameter, through the centre of which a triangular defect in the bone can be felt. No pulsation can be noted.

Optic neuritis and beginning venous stasis most marked in the left eye.

Temperature 37° C. Pulse 96 to 104.

Upon incising the swelling, half an ounce of odorless pus escaped, and protruding from the triangular opening in the bone was a shining pearly mass, which came away in layers. The whole mass, amounting in size to two hen's eggs, was removed by curette. The bones of the skull covering the mass were only as thick as parchment over a large area of the parietal, temporal and occipital bones. The occipital lobe and cerebellar hemispheres were much

compressed and it required four weeks for the brain to expand in the cavity to the normal proportions.

The microscopic appearance of the tumor was that of cholesteatoma. *Campbell.*

A Case of Pyemia Caused by Bilateral Otitis Media with Osteophlebitis of the Temporal Bone.

RIMINI, Trieste. (*Archives of Otolaryngology*, Vol. XXX, Nos. 4 and 5.) A student, aged 17, suffered with acute suppuration of the right middle ear. Paracentesis was followed by the discharge of much pus. Next day trouble appeared in the left ear and the same procedure was adopted. For ten days the patient did well, then he was seized with sudden headache and his temperature rose to 39° C. Paracentesis was repeated without benefit. The eyelids became edematous. The first right metatarso-phalangeal joint swelled, the temperature rose to 40.2 C and headache became worse.

After otoscopic examination it was determined to open the right mastoid antrum, and the pus and granulation tissue were thoroughly scraped out. The swollen toe joint developed an abscess which was opened. In eight weeks the patient was discharged cured.

Inasmuch as the temperature fell at once after operation and the pyemic symptoms disappeared without opening the lateral sinus, it is evident that the case was one of osteophlebitis without sinus involvement. *Campbell.*

On the Therapeutic Value of Vibratory Massage of the Drumhead.

SCHWABACH, Berlin. (*Archives of Otolaryngology*, Vol. XXX, Nos. 4 and 5.) The massage apparatus, that of Breitung, is operated through the electric street current. Daily applications were made for two to three minutes, employing in that time 600 piston-excursions of 2 mm. each, the number of excursions were gradually increased up to 1200.

The tinnitus, not rarely, stopped a short time after the first sitting for some minutes up to several hours.

In forty-three cases of sclerosis an improvement in hearing was obtained in 4.9 per cent. of cases, whereas a permanent cure of the subjective noises occurred in 28.3 per cent.

In principle chronic middle ear catarrh 39.1 per cent.

showed a permanent improvement in hearing and 45.7 per cent. showed improvement in subjective noises.

In sub-acute middle ear catarrh both hardness of hearing and tinnitus were improved in 44.4 per cent. of cases, while in the sequelae of chronic suppuration of the middle ear 91.6 per cent. showed complete recovery or notable improvement in the subjective noises and unpleasant sensations, whereas hearing power was essentially improved in only 55 per cent. of the cases.

[The Victor Electric Company, of Chicago, have made for the abstractor a pump-attachment to their electro-motor by which can be employed not only vibrations but also suction and pressure. The length of pressure stroke can be of any desired length and the speed regulated from 50 to 5000 strokes per minute.]

Campbell.

A Case of Tuberculosis of the Ear, with Autopsy.

SWAIN, New Haven. (*Archives of Otolaryngology*, Vol. XXX, No. 3.) A man, aged 37, had a discharge from the left ear for six months. He was suffering from advanced pulmonary tuberculosis and had tubercular disease of the left testicle dating back five years. The left ear was entirely deaf and the middle ear full of cheesy pus and granulation tissue. The probe revealed bare bone on the promontory, at attic and externally along the auditory canal. Pain in the ear and on the vertex was very severe but it was much lessened, after establishing free drainage by clearing away granulation tissue and carious bone from the tympanum.

Autopsy revealed general tuberculosis of both lungs, tubercular deposits in the right kidney, spleen and both testicles.

On the anterior surface of the petrous portion of the temporal bone was an area raised about one-fourth of an inch and over this the dura and periosteum were very considerably thickened as if to put up a barrier to further progress of the disease. A cross section at this point showed that a large mass of bone, including the wall of the middle ear, the cochlea, external canal and part of the mastoid region had become diseased and well nigh sequestered. The auditory nerve was softened from the cochlea to its exit into the interior of the skull.

Campbell.

A Correlation of One Hundred Successive Mastoid Operations.

PYLE, Jersey City. (*Archives of Otolaryngology*, Vol. XXX, No. 3.) Five cases out of five of phlebitic thrombosis verified the observation that when the sinus is surrounded by foul pus a venous clot may be anticipated.

Two cases with extensive osteoporosis and perisinous granulations, verified the observation that such pain and tenderness, with little or no fever, are quite pathognomonic of extradural abscess.

Children furnished three times as many acute cases and but one-third as many chronic cases as adults, illustrating that the greater number of mastoid inflammation sooner or later demand surgical interference.

Forty-five acute cases furnished 33 per cent. of the intracranial complications, mostly in children and all lived.

Fifty-five chronic cases furnished 66 per cent. of intracranial complications, of which four died. *Campbell.*

A Case of Cerebellar Abscess. Operation. Recovery.

RICHARDS, Newcastle-on-Tyne. (*Archives of Otolaryngology*, Vol. XXX, No. 3.) A boy, aged 6 $\frac{1}{2}$ years, had had a discharge from his left ear since he was four months old.

Seven days before coming under observation the discharge ceased and acute pain set in that ear. Temperature 100° F to 102° F; tongue and lips dry; teeth covered with sordes; the area over the mastoid slightly tender. He was drowsy and lay curled up on his right side, with the head held somewhat firmly rotated and bent over the left.

The general symptoms improved during the next few days and the discharge reappeared; yet he remained fretful and drowsy. He gradually got thinner and when raised in bed he held his back very rigid. The pupils were normal but he had slight photophobia.

He could not co-ordinate the movements of his hands and the pulse began to intermit.

Operation was undertaken, granulation tissue was found in the antrum and a small sinus leading backward and downward. The lateral sinus was opened but appeared normal, so the cranial wound was extended backward and an exploring needle plunged into the cerebellum and two drachms of pus withdrawn. The pus cavity was freely

opened and a drainage tube inserted. From this time on he convalesced normally.

Campbell.

II.—NOSE AND NASO-PHARYNX.

The Use of the Aqueous Extract of the Suprarenal Gland in Persistent Epistaxis.

LEWIS S. SOMERS, Philadelphia. (*Philadelphia Medical Journal*, March 2, 1901.) Somers has found an aqueous extract of suprarenal gland to be very valuable in persistent nasal bleeding. It not only possesses a hemostatic action, but further than that it promotes the local nutrition of the part, so that recurrence is much less frequent. "The erosions heal and a general nutritive tone is given to the tissues that no other local remedy seems to impart."

Richards.

The Bucco-Antral Route in Neurectomy for the Relief of Tic Douloureux.

GORDON KING, New Orleans, La. (*Philadelphia Medical Journal*, Aug. 10, 1901.) The author has modified somewhat the operation of Fraenkel, who sought to relieve the pain of tic douloureux by an operation less dangerous than that of resection of the Gasserian ganglion but which would be more efficient than stretching the nerve trunks or a resection at their points of entrance. Two cases of relief by this method are reported, both very successful, and each with a very short period of after treatment. Under chloroform anesthesia an incision is made through the gingivo-labial fold, the anterior wall exposed and the periosteum lifted as high up as the infra-orbital foramen. The infra-orbital nerve is laid bare at its exit from the foramen, being separated from its attachment to the soft tissues of the cheek and caught up with hemostatic forceps. The anterior wall of the antrum is then broken through with a chisel, and the bone cut away as high up as the infra-orbital foramen, so as to bring the interior of the cavity into plain view when the lip and cheek are retracted forcibly upward. By making traction on the nerve, its bony canal is easily traced in its course between the roof of the antrum and the orbit, and

can be broken into with a small chisel. The nerve is freed from the canal, and followed up into the sphenomaxillary fossa, where it is firmly grasped with narrow bladed forceps and drawn out by a twisting motion; this insures extraction of a greater length of nerve and a division of those branches which are given off from the sphenomaxillary fossa. The antrum is next carefully dried out and the buccal wound sutured with catgut. A gauze drain is not necessary, as the healthy lining membrane of the antrum shows strong resistance to infection from surgical wounds.

The inferior dental branch is next exposed at its entrance into the inferior dental canal by trephining the inferior maxilla externally just at the angle. About an inch and a half of the nerve is removed and the skin wound closed. About an hour and a quarter is required for the two operations.

But slight traumatism is inflicted by the operation of incision of the inferior dental branch and it can be done at the same time. The resulting scar is slight. The functions of the tongue and the muscles of mastication are not weakened when the nerve is cut at this point.

Richards.

Chronic Sphenoidal Sinusitis.

FURET. (*Gazette des Hopitaux*, June 6, 1901.) The author reviews the clinical history of this affection, and recommends operation through the nose in simple empyema if the nasal cavities are sufficiently large. External operation is recommended when there is maxillary sinusitis in association, or where there are cerebral complications.

Goodale.

Treatment of Chronic Diffuse Hypertrophic Rhinitis by Submucous Injections of Chlorid of Zinc.

VIOLLET. (*Gazette des Hopitaux*, May 2, 1901.) The writer concludes from his investigations that this method frequently gives good results in chronic swelling of the mucosa of the inferior turbinates, being harmless, simple, and rapid. One injection frequently gives the desired result.

Goodale.

Syphilitic Primary Lesions of the Nose.

W. FREUDENTHAL. (*Klinisch-therapeutische Wochenschrift*, June 16, 1901.) A man, 32 years old, always in

previous good health, began to experience dryness in the nose, which became associated with soreness upon the right side of the septum. The symptoms increased progressively and were treated by local applications without relief. The extraordinary dryness of the nose obliged him to get up several times in the night in the attempt to moisten it. Inspection showed a small erosion on the right side of the septum, simulating the early stage of perforating ulcer. In the right occipital and post-cervical regions there was a lymphadenitis. The diagnosis was at first made of an influenza in its later stages, nevertheless the erosion increased in size and the glands on the other side became swollen. Finally the ulcer presented the characteristic appearance of a primary specific lesion with elevated margins rising above the level of the mucous membrane in the neighborhood. The source of the infection was taken to be accidental self-infection from the finger after work in a gynecologic clinic. *Goodale.*

The After-Treatment of Operations on the Nasal Accessory Sinuses.

WALTER A. WELLS, Washington, D. C. (*Boston Medical and Surgical Journal*, July 25, 1901.) Many apparently brilliant operations are not successful from the patient's standpoint, because the after-treatment is so long continued and the final results are not entirely satisfactory. This is especially true of the affections of the ethmoid cells and accessory cavities.

"Empyema in a neighboring sinus, whose ostium is in close relation with the sinus operated on, will maintain the suppuration in the latter, unless cured. The frontal is frequently the cause of antrum disease, and the ethmoid the cause or the effect of both the antrum and the frontal sinus trouble.

"The cause for the continuance of the suppuration is attributable in many cases to the fact that all the diseased tissue was not removed at the time of the operation. The irregularities and anomalies in the form of the sinus are often responsible for the failure to have reached every point where disease was located. In such cases curettage of the sinus must be repeated from time to time according to the indications."

As a help to the final healing of these cases the author

has had better results from the use of protargol than from any other remedy. He uses it for irrigation in from 2 to 5 per cent. solutions, and swabbed over the diseased area in 20 to 40 per cent. solutions, in water and glycerin. Special attention is to be paid to all the constitutional conditions. *Richards.*

A Case of Nasal Deformity from a Median Furrow, Corrected by Subcutaneous Implantation of a Portion of the Septal Cartilage.

J. L. GOODALE, Boston. (*Boston Medical and Surgical Journal*, July 25, 1901.) An operation was done to relieve a conspicuous furrow, extending from the lower border of the nasal bones to the tip of the nose, and due to failure of the triangular cartilage to extend upward to the level of the alae. An incision was made through the skin of the roof of the left nasal vestibule and thence under the furrow, with a tenotomy knife in such a way as to create a chamber, bordered above by the skin of the furrow, and below by the upper margin of the triangular cartilage and adjacent mucous membrane. Next an oblong piece of the septal cartilage, 2 cm. long and 7 mm. broad, was dissected out from the right nasal passage, just above the vomer. This was trimmed and then introduced into the subcutaneous chamber and adjusted by external manipulation, completely obliterating the furrow. No infection followed, and three months later the results were found to be good and the furrow had disappeared. *Richards.*

Acute Edema of the Septum.

J. L. GOODALE, Boston, Mass. (*Jour. A. M. A.*, July 20, 1901.) Two cases of this somewhat rare condition are reported. In the first, the edema appeared as a large nasopharyngeal swelling having its attachment to the left side of the septum, and there was some suspicion of syphilis as a possible cause. The mass was removed with a snare.

In the second case, the edema followed a severe cold, and occurred one cm. behind the junction of the septal cartilage with the perpendicular plate of the ethmoid. It bled freely on contact with the probe, but gradually grew smaller and finally disappeared. *Richards.*

Remarks on the Diagnosis of Adenoids in Infancy.

WALTER F. CHAPPELL. (*The Laryngoscope*, September, 1901.) The question of the differential diagnosis of aden-

oids in infancy is dwelt upon at great length by the author. Considerable difficulty is at times met with in order to determine the cause of respiratory embarrassment in the first few months of infant life. The more frequent conditions with which adenoids may be confounded being lymphatism and lithemia, syphilitic and gonorrheal rhinitis, malformations of the palate and nasal passages, projections anteriorly of the bodies of the cervical vertebrae, congenital atelectasis and hypertrophy of the tongue.

Seymour Oppenheimer.

A Variation in the Technique of Septum Operations.

STEPHEN H. LUTZ, Brooklyn. (*The Laryngoscope*, August, 1901.) The object of the paper is to advocate the fracturing of the septum in cases of deformity without the use of any cutting measure, or should such means be indicated, to fracture before, instead of after cutting, as is the usual technique.

The author believes the resiliency of the septum is better overcome and the mucous membrane is left more nearly intact. As in other operations of this character a nasal plug is inserted after the operation. *Seymour Oppenheimer.*

Treatment of Certain Conditions of the Antrum of Highmore Through the Natural Openings.

NORVAL H. PIERCE, Chicago. (*The Laryngoscope*, September, 1901.) A very able and practical paper concludes that there is strong evidence to warrant the belief that in diseased antra accessory openings are more frequently found than in healthy antra, and that we should, in all cases, whether for diagnosis or treatment, try for the ostium or accessory openings before resorting to surgical puncture, whether through the inferior or middle meatus, the canine fossa or alveolar process.

Seymour Oppenheimer.

Empyema of the Antrum in Young Infants.

EMIL MAYER, New York (*Med. Rec.*, Aug. 10, 1900.), says that the apparent rarity of this affection, judging from the few cases on record, due, in all probability to the difficulties in the way of diagnosis, the remarkable unanimity of the symptoms in the cases diagnosed as such, the original methods employed for their cure and the all too brief mention or complete omission in most text-books, should make the study of empyema of the antrum of High-

more in young infants of increasing interest to the rhinologist.

Not more than a dozen cases are to be found in literature and the writer presents a case of his own which occurred in a child aged $2\frac{1}{2}$ years, in whom the general symptoms noted were eversion of the right lower lid, fistulous opening in the cheek on the right side from which pus exuded and a most penetrating odor from the same side of the nose. Child had been well until six weeks before having been seen when an attack of scarlet fever and pneumonia occurred; two weeks later a very severe nasal diphtheria was present; subsequently an abscess formed on the cheek which was incised and a fistulous opening remained. At the time of the examination a small probe entered the fistulous opening and revealed the presence of a large cavity in a downward direction and had the feel of necrotic bone; examination of the pus showed streptococci and staphylococci in abundance; no Klebs-Loeffler nor tubercle bacilli were found. The diagnosis of an abscess of the antrum of Highmore with diphtheritic infection, was made. The child was operated upon and recovered.

Another case is presented by the writer, the main facts of which were communicated to him by Dr. W. B. Platt of Baltimore. Six other cases were found in the literature, all of them due to infection.

The interesting question has been raised regarding these cases as to whether these are simply carious conditions, or tubercular, or an osteomyelitis. Reports of bacteriologic examinations have been made by various observers, notably Moritz Wolff of Germany and Richard Miller Pierce of this country.

The writer concludes that it is established beyond question of doubt that empyema of the antrum of Highmore in young children is not merely caries or tuberculosis or an osteomyelitis, but is as distinct an affection as in later life. That so few cases are noted in the living is in all probability due to the fact that the mortality is greatest when this complication occurs, and also that in the very young the presence of localized pain is so difficult to establish, as the little sufferer cannot indicate it.

In all the reported cases the symptoms were the same, namely, fistula under the eye, usually discharging pus,

ectropion, one sided purulent discharge from the nose with foul odor and eroded bone.

Careful observation, especially in nasal diphtheria when the bacilli are present, may enable us to discover these cases and by prompt attention, recovery result.

Regarding treatment, incision, curettement and thorough drainage will be followed by complete cure in the vast majority of cases.

Empyema of the Antrum and Acute Peritonitis.

CARL REITTER (*Monatssch. für Ohrenheil.*, Vol. XXXV) observed a case of acute suppurative peritonitis in which no other cause was found except an empyema of the antrum. It is unfortunate that a bacteriologic examination of the pus was not made in order to determine the true relation between the two conditions. *Levy.*

A New Point of View in the Treatment of fresh Coryza.

GUSTAV SPIESS (*Arch. für Laryng.*, Band XII), upon the ground that the considerable secretion in coryza depends upon a high degree of irritability of the mucosa, has sought for an agent which will overcome this. Internally salicyl and antipyrin may be given. Locally cocain might be used if it were permanent and non-poisonous in its effect. In this regard, orthoform is most successful. It may be used with *sozajodoicum* in equal parts in ten gram powders. Untoward action occurs but seldom; its use is thereupon contraindicated. It is manifested by a feeling of heaviness similar to that following cocain administration. *Levy.*

Eye-disease in Relation to Tuberculosis of the Nasal Mucous Membrane, and the Treatment of the Latter by Means of Lactic Acid.

HINSBERG, Breslau, (*Archives of Otolaryngology* Vol. XXX, Nos. 4 and 5.) During the six months between October, 1900, and March, 1901, the author observed nine cases of tuberculosis of the nasal mucous membrane and of these, five showed disease of the lacrymal passages or of the eye and its surroundings.

Case 1. An anemic girl, aged 15, with granular nodules in both lower nasal meati, of the soft palate and epiglottis, a fistula in the region of the left lacrymal sac, and a large round grayish area, about 1 cm. in diameter in the lower inner quadrant of the eyeball. There is opacity with several yellow fossæ in the lower part of the cornea and a

number of grayish-yellow nodules around the border.

Case 2. Tuberculous granulation tumor of the left lower tubinate. Tuberculosis of the left lacrymal sac and tuberculosis of the left conjunctiva tarsi.

Case 3. Tuberculosis of the nasal mucous membrane of both sides. Healed left dacryocystitis. Tuberculous infiltration in the left lower lid.

Case 4. Tuberculous granulation tumor of the nasal septum. Stricture of the left lacrymal canal. Phlyctenules in the left eye.

Case 5. Lupus of the nasal mucous membrane of both sides. Healed lupus of the tip of the nose. Left dacryocystitis.

The five cases well illustrate the various changes which follow tuberculosis of the nasal mucous membrane.

There may be some dacryocystitis, without any evidence of a tuberculous lesion with symptoms of disease of the lacrymal sac.

The disease in no case of the author's was limited to the lacrymal sac, but extended to the passages beyond.

The conjunctiva and cornea are affected by the transmission of infectious material, (a) of an inflammatory nature due to irritation of the secretion, (b) of specific tuberculous nature, usually in the form of infiltrations on the conjunctiva which may extend to the cornea.

The secretion of the tuberculous lacrymal sac may leave the conjunctiva intact, but produce tuberculous lesions in the surrounding skin of the eyelids. In all cases fistulae are present showing the path of infection.

The granulation tumors were removed with snare, cautery, or curette, then daily applications made with 80 per cent. lactic acid.

Campbell.

The Technique of Intranasal Operations.

DENKER, Hagen. (*Archives of Otolaryngology*, Vol. XXX, Nos. 4 and 5.) The author, after using a 10 per cent solution of cocain as an anesthetic, makes deep furrows with the cautery blade down to the bone or cartilage along the lines in which the chisel, saw or scissors is to be operated. The advantage claimed is that it obviates hemorrhage and the necessity of tamponade.

Campbell.

Thrombophlebitis of the Superior Longitudinal Sinus, Following Inflammation of the Frontal Sinus.

KILLIAN, Freiburg. (*Archives of Otology*, Vol. XXX, Nos. 4 and 5.) The author has had the opportunity of observing five cases, one following an acute, and four following chronic purulent inflammation of one or both frontal sinuses.

He divides the cause of disease into the following stages:

1. The prodromal stage: Symptoms of sinusitis, fever, severe frontal headache.

2. The initial stage: Pain in the parietal region.

3. Stage of regional abscesses (the disease has not become generalized). Clinical appearances varying according to the site of the extra- or intracranial abscess and the presence with the latter of general brain symptoms.

4. Pyemic stage: Rigors, remittent fever, pulmonary complications, splenic tumors, etc.

5. Terminal stage: Meningeal symptoms developing after one to four days.

Campbell.

Empyema of the Right Maxillary, Ethmoidal and Sphenoidal Sinuses with Sudden Blindness of the Left Eye, Operation, Recovery of Sight.

HALSTEAD, Syracuse. (*Archives of Otology*, Vol. XXX, No. 3.) A young woman, who for some time had a catarrhal affection of the right side of the nose, awoke one morning to discover that she was totally blind in the left eye. Ophthalmoscopic examination revealed an exudation into the sheath of the left optic nerve, veins enlarged and tortuous, arteries diminished in calibre. Left pupil dilated and responds but little to ophthalmoscopic light reflex.

Inquiry elicited the fact, that she had suffered from a fetid yellow discharge from the right nostril with pains over the right eye, particularly forenoons. On the day of coming under observation, the discharge was materially decreased and it came from the previously healthy nostril.

On rhinoscopic examination the septum was found deviated to the right. The right inferior turbinate was swollen and covered with pus which trickled from above. On the left side no pus in the superior or middle meatus, but some on the floor under the inferior tubinate. On the posterior

wall of the naso-pharynx some pus which could not be traced to any definite point.

Transillumination showed the right maxillary sinus completely dark with no pupillary glow, while the left antrum was translucent, the pupil being bright. Both frontal sinuses were translucent. The left pupil was widely dilated, did not respond to reflected light thrown into it, but contracted when light was thrown into the right eye, showing that the third nerve was not involved. Distinct exophthalmos of the left eye. Temperature 99.4F. Pulse 82.

A diagnosis was made of empyema of the right maxillary antrum, right ethmoidal and right sphenoidal sinuses with a recent breaking through of the septum between the two sphenoidal sinuses, allowing pus to distend the left sphenoidal cavity, and, by a bulging of the outer wall of the sinus, causing pressure on the optic nerve as it passes through the optic foramen.

Operation was undertaken under cocain anesthesia. The anterior end of the middle turbinate was removed, then the posterior ethmoid cells and sphenoidal sinus opened.

From this time on the condition of the patient improved. A slight exophthalmos and some dimness of vision ($\frac{6}{18}$) persisted.

At a subsequent operation the right maxillary antrum was drained through the alveolus. *Campbell.*

III.—MOUTH AND PHARYNX.

Acute Edema of the Uvula, Palate, Pharynx and Epiglottis, Following the Excessive Application of Adrenal Solution Preserved With Chloretone.

S. SOLIS COHEN, Philadelphia. (*Medical News*, Oct. 5, 1901.) The patient had suffered from recurrent attacks of asthma, and had been given for his own use a solution of adrenal gland, which was used with good results. Later a solution of suprarenal preserved with chloretone was substituted. One night after using the spray very vigorously, for some three or five minutes, an acute edema of the uvula, palate, and somewhat of the epiglottis, took

place. The uvula and palate required scarification. The edema subsided rapidly, but traces of it remained for three or four days. *Richards.*

Report of a Case of Uvular Tertiary Manifestations.

G. HUDSON MAKUEN, Philadelphia. (*Journal of the A. M. A.*, Aug. 17, 1901.) The syphilitic ulceration was confined entirely to the lingual tonsil, involving the major part of this gland, and was typical of the tertiary form. The case is of interest because the author believes it to be the first case reported in which the syphilitic ulceration was entirely confined to the lingual tonsil. *Richards.*

Acute Amygdalitis, its Treatment by the Local Application of Iodin.

SAMUEL FLOERSHEIM, New York. (*New York Medical Journal*, Oct. 5, 1901.) The writer refers to the powerful antiphlogistic action of the tincture of iodine in inflammations of the throat, and advances in its behalf his experience with it in sixty-eight cases of catarrhal and phlegmonous forms of tonsillar and pharyngeal affections.

Seymour Oppenheimer.

Dangerous Hemorrhage After Removal of Enlarged Tonsils, and Adenoids with Report of a Case.

A. C. GETCHELL, Worcester, Mass. (*Journal of the A. M. A.*, Oct. 5, 1901.) A case of alarming hemorrhage following the operation for enlarged faucial tonsils and adenoid vegetations, coming on two hours after operation under ether anesthesia.

The patient was a child of five years of age, frail and delicate in stature and very anemic.

[Reviewer's Note.—Cases of this kind emphasize the necessity of refraining from undertaking operations of this nature until our patient has been built up sufficiently to withstand the shock and until the coagulating power of blood has been bettered by preliminary treatment.]

Seymour Oppenheimer.

Cleft Palate and its Relation to Speech.

G. HUDSON MAKUEN, Philadelphia. (*American Medicine*, Oct. 5, 1901.) The palate is the most important organ of speech, as it is not only essential in the enunciation of nearly all the elements of speech, but is also an important factor in the regulation of the resonant chambers of the voice. Although it is for the consonant sounds that

the palate is most essential, the vowel sounds are also impaired in resonance by a defective palate.

As most of the serious forms of defective speech are acquired in early childhood, all measures for the closure of cleft palate should be undertaken as early in the formative speech period as the operation can be performed.

No operation for cleft palate can bring about a perfectly normal palate, inasmuch as there is always an insufficient amount of tissue with which to close the cleft and at the same time give a freely movable velum palati. The resulting tension, however, can be relieved to a great extent by lateral incisions; but there always remains greater or less space between the velum and the posterior pharyngeal wall, which space has the same effect upon the voice and speech as has a perforation of the palate. To correct this condition the author offers the following suggestions:

1. "Separating the adhesions that often exist between the pillars of the palate on either side, and the remnant of the tonsils.

2. "Forcible stretching of the velum with the finger after the division of some of the tense fibers of the palato-gloss and the palato-pharyngei muscles.

3. "Training and developing the velum palati muscles by means of both direct and indirect voluntary exercises."

Richards.

Differential Diagnosis of the Primary Infections of the Oral Mucous Membrane.

GLATZEL (*Arch. für Laryng.*, Band XII) states that this localization is uncommon; the diagnosis is all the more important on account of the danger of infection. The appearance often differs from the usual type. We distinguish the superficial erosion from the deeper ulcer. In the former the induration is frequently slightly marked and hard edges are not to be observed. The mass feels, when grasped with the fingers, like a piece of parchment. Development is rapid. In most cases, swelling of the lymph nodes occurs very early, accompanied by severe pain. The following are considered by way of differential diagnosis: Herpes buccalis, tubercular ulceration, secondary and tertiary syphilis.

Levy.

Peritonsillar Suppuration.*

HENRY J. HARTZ. (*Detroit Medical Journal.*) The connection between circumtonsillar and tonsillar suppuration is so intimate that, for purposes of etiologic discussion, they may be considered as identical. Just as the brain and its blood-vessels are infected through a suppuration of the middle ear, so the circumtonsillar tissues are invaded secondarily to tonsillar and fossa disease; at the same time there are other sources of infection, such as caries of the teeth, nasal operations, abrasions of the pharyngeal membrane, etc.

The tonsils are especially prone to infection owing to a constant evolutionary process or metamorphosis tending to obliteration, in evidence of which may be cited the fact that peritonsillar diseases occur chiefly in adolescents and junior adults (up to the age of thirty-five), or during the time that retrograde changes or atrophy of the lymphoid tissue obtain. The anatomic relationships of the tonsil with the plica triangularis and the supratonsillar fossa are important factors in the induction of tonsillar and circumtonsillar suppuration—the plica triangularis and the supratonsillar fossa become structurally altered, especially in children, as the result of disease. The inflammatory exudate produces not only adhesions, but likewise connective-tissue bands between the fossa, the plica, and the tonsils, that result in occlusion of the orifice of the former and of (some at least) the crypts of the tonsils. The secretions thus confined under pressure form a favorable nidus for the development of pathogenic bacteria that under normal conditions would remain innocuous. The ensuing inflammation and consequent hyperemia, affect the integrity of the epithelium lining the crypts, the destruction of which may be only superficial in depth and microscopic in extent, but sufficient to allow the ingress of germs, and any obstruction of the crypt will favor the encystment of the pyogenic agents, thereby resulting in lacunar intra-follicular abscess. The suppuration may be encapsuled, or it may empty itself into the faucial space: Again it may extend outward toward the cellular investment of the tonsils to form a retratonsillar abscess: It

may also discharge into the supratonsillar fossa, or if, perchance, the orifice of this fossa is closed by adhesion, the pus is apt to burrow its way in the line of least resistance, entering the pharyngo-maxillary space, thereby inducing a typical peritonsillar tumefaction high up in the soft palate. The anatomic obstruction of the tonsil and fossa is brought about largely by the plica triangularis, which owing to its vascularity provides the material for adhesions.

The plica is a triangular shaped membrane which has been termed the capsule and the operculum of the tonsil. It was first described by His, the German embryologist, along with the supratonsillar fossa, in 1885, and the designations thus bestowed by him are part of the world's nomenclature. The plica arises from the anterior pillar, which becomes visible at the fifth month of fetal life, and in a typical case extends from the upper posterior portion of the pillar backward and downward until it is finally lost in the tissues at the base of the tongue. From its position it often covers over that portion of space not occupied by tonsillar tissue and known as the supratonsillar fossa; it is likely also to obstruct the mouths of a number of the tonsillar crypts, thereby damming up the secretions and furnishing excellent culture grounds for germs. A plica adherent to the edge of the tonsil gives rise to the formation of elongated cavities extending one or two inches behind and toward the base of the tonsil. Also, some of the lacunar orifices may be obstructed by the envelopment of the plica, and thus secretions accumulating become decomposed, whereby the absorption of this morbid material may induce hypertrophy and suppuration extending often to the cervical glands, and is frequently the means of initiating an attack of circumtonsillar inflammation. The plica also is often adherent to the apex of a hypertrophic tonsil, both together obstructing the fossa. An abnormal amount of adenoid tissue may extend into the space sufficient to interfere with its capacity, predisposing the fossa to suppurative processes. The plica and supratonsillar fossa are nearly always demonstrable in the young and middle-aged; and coincident with atrophy of the glands the fossae become shallow, and the plicae recede toward the posterior pillars and traverse the inter-faucial spaces

obliquely downward. The intent of Nature in providing the plica appears to be somewhat obscure, yet the consensus of opinion is that its purpose is to afford a support to the tonsil, and to protect its buccal surface from injury. The peritonsillar abscesses that have come under my personal observation have all exhibited an extraordinary, if not abnormal, development of the plica. This membrane, too, sometimes, retains within its folds and in the cavities, decomposing substances that develop as the result of its adhesion, and thus often becomes a potent factor in the production of fetor of the breath.

Obstruction of the natural channels of drainage then, may be definitely held as one of the exciting causes of tonsillar and peritonsillar suppuration, though such predisposing factors as exposure to cold and wet, occupation, habits, age, etc., undoubtedly have a more or less remote influence. Another exciting cause is the presence of some of the ten varieties of cocci that obtain within the tonsil or mouth. The strepto- and staphylococcus are normally present, but innocuous until such time as predisposing factors permit them to multiply and develop inflammatory processes. Some difference of opinion exists as to whether the germs enter the tonsils primarily through an abrasion, or secondarily through the blood and lymph streams, and it is conceivable that both avenues may carry the infection. The lymphoid tissue of the tonsils and the contiguous regions with their capillary circulation, constitute a *locus minoris resistentiæ*, or a "physiologic wound" as Gerhard aptly terms it. Articular rheumatism following tonsillitis is in all probability caused by the deposit of germs by the blood or lymph channels in the serous membranes of the joints, and has been bacteriologically proved to be a suppurative process. It is true that malnutrition and the consequent deposit of crystalline material in the muscles and joints, usually termed uric acid rheumatism, is a predisposing factor in determining suppuration. About one-quarter of my cases of peritonsillar abscess had suffered from pain indefinitely described as, or termed rheumatic. The obstruction to crypts of tonsils and orifices of the supratonsillar fossae are the chief causes of suppuration, in proof of which may be cited the fact that when the obstruction is thoroughly removed no recur-

rences take place, even in those cases that suffered from articular rheumatism.

The obstructions of the channels of drainage in the tonsillar region may be so firm as to force the purulent secretion to burrow in the pharyngo-maxillary space, and thus prolong the suppurative act. Moritz Schmidt reports cases of only one month's duration wherein both the tonsils and the pillars were successively invaded. I, also, personally observed an instance in which, after an acute tonsillitis, the left throat was involved including the posterior pillars, and wherein the pus ultimately made its way to the right throat inducing so great congestion as to interfere with deglutition—the liquid food ingested was regurgitated into the nose. In this case, oft repeated incisions failed to reveal pus sufficient to account for the condition; but after two months a rupture occurred spontaneously in the region of the soft palate on the side first affected, and the patient recovered without further complication.

Recurring abscesses are mostly situated within the pharyngo-maxillary space. The danger and gravity arising from abscesses and erosion of the vessels of the neck can not be too greatly emphasized, since the pus may burrow along the walls of the latter and thus reach the mediastinal space. That this space is in close relation to both tonsil and fossa, and that it nearly always contains purulent fluid, is apparently evidenced by the extreme bulging of the region of the soft palate. This tumefaction is apt to prove most misleading, as it merely differentiates the highest point of the abscess cavity and not the spot where there is the greatest accumulation of pus; consequently the classic incision midway above the superior arch is in these cases ineffective.

In two cases, wherein I was summoned late, I incised the abscess at its lowest point, which was near the wisdom tooth of the lower jaw.

When an incision is made, it should be by means of sterilized instruments in order to prevent mixed infection, and frequently the abscess is due to the action of one species of germ alone. Leland's method of using the sterilized finger after incision with a view of tearing the tonsillar tissue and thus reaching the pus-sac, seems a painful and withal in a hard tonsil is an impossible) procedure,

but it has the advantage of locating the direction of the abscess and is free from the danger of wounding the branch of the ascending pharyngeal artery in the anterior pillar of the fauces. Instruments of a blunt character, as employed by Pierce and Kyle, permit of opening the supratonsillar fossa without danger to this blood-vessel.

To avoid recurrence of peritonsillar abscess, it is essential that the abscess cavity be irrigated and drainage established from its most dependent part. It is my experience that while tonsillotomy and ignipuncture may hinder recurrence, such is not always infallible. Radical excision of the upper part of the tonsils, or removal of the plica triangularis, and breaking up of adhesions wherever the channels of drainage are obstructed, are to be recommended. Sometimes curettement of the fossa, followed by an application of trichloroacetic acid, is sufficient. Obliteration of the crypts of tonsils is best accomplished by extirpating the entire gland, although the punch forceps have proved of great utility in my hands in cases where but a few crypts were diseased. I have employed the galvano-cautery loop and cautery knife with good effect in some instances, and thus rendered the operations practically bloodless; the use of suprarenal extract also aided to free the field of operation from sanguineous effusion. Operations upon the plica are more painful than upon the tonsil, but the topical application of a ten per cent. solution of eucain and infiltration of the tissue by Schleich's mixture will mitigate the pain sufficiently for all practical purposes. When adhesions of the apex of the tonsil are deep in the floor of the fossa, and firm to the semilunar margin of the anterior pillar, two vertical incisions may be made, one between the anterior pillar and the tonsil, and the other between the tonsil and the posterior pillar, extending well up into the soft palate; the gland can then be seized and dragged to the median line where a horizontal incision severs it, when the remaining lymphoid tissue may be removed by the scissors—an operation that leaves the supratonsillar orifice wide open.

The pathology of acute septic inflammation renders it unlikely that drugs can be of much value in the management of these maladies. Sometimes, if seen early, they may be aborted by a liberal dose of mercurous chlorid

—such is always indicated in suppurations—followed by the administration of tincture of veratrum or tincture of aconite (which may also be combined or given alternately) every half hour, in one-half minim doses, until a relaxing effect upon the arteries obtains and full diaphoresis is established. Local scarification and topical application of heat will assist in reducing the congestion and in dispersing the accumulated fluids, but after twelve hours treatment, if no abatement of inflammation is had, medication should give way to operative processes. The local application of heat and inhalation of vapors, together with rest in bed, are of extreme value. Gargling is too painful a process to recommend, but a local spray of four per cent. solution cocain is grateful whenever the pain is intolerable. All else failing, on the third or fourth day an incision may be made under local anesthesia at the lowest point of tumefaction, which will cooperate with the advancing suppuration and favor an early termination of the abscess.

In summarizing, he would emphasize:

That the obstruction of the orifice of the supratonsillar fossa and the orifices of the crypts of the tonsils, predisposes to circumtonsillar suppuration directly and, any vulnerable part of the organism remotely:

Early incision at point of origin, which is usually within supratonsillar fossae, or within the crypts of the tonsils:

Chronic latent tonsillar abscesses may initiate an infection, developing pneumonia, pleurisy, pyemia, or septicemia:

That the coccus variety of germs may be temporarily encapsuled within a wall of connective tissue:

That articular rheumatism, consecutive to tonsillitis, is a suppurative process produced by invasion of cocci through lymph or blood channels:

That uricacidemia does not cause suppuration, but may predispose thereto.

Retropharyngeal Abscesses After Otitis Media Purulenta.

KIEN, Strassburg. (*Archives of Otolology*, Vol. XXX., Nos. 4 and 5.) The author briefly reports the histories of four cases.

Case 1 was that of a chronic left otitis media and an ab-

cess extending from the insertion of the sterno-cleido-mastoid to the middle of the neck. The entire pharynx bulged forward. Pressure there as well as on the abscess in the neck extruded pus from the ear. Six days after opening abscess purulent pneumonia set in, but gradually disappeared.

Case 2 was one of right-sided, acute, purulent otitis media with pain in the mastoid. Operation. Four days later temperature rose and remained high for 10 days. Dysphagia. The sinus was opened and bled profusely. Eight days later the pharynx bulged excessively. The fever remained high till the abscess pointed and was opened, then the patient was soon cured.

Case 3. A subacute, purulent otitis with a perisinuous abscess. The sinus was exposed. No pus was found in the antrum, but some escaped from the posterior cranial fossa. Three days later, with moderate fever, there was bulging of the pharyngeal wall, dysphagia and painful infiltration in the neck. Pressure on this region drove much pus from the long cavity. The entire tip of the mastoid was now removed, and below this point a pus pocket extended beneath the pharyngeal mucosa.

Case 4. An acute, purulent otitis media with all symptoms of retropharyngeal abscess. The antrum was filled with pus and granulations and a fistula reached down from the antrum to the pharyngeal mucosa. *Campbell.*

IV.—LARYNX.

A Case of Myxoma of the Larynx.

POLLATSEK. (*Medizinisch-Chirurgische Presse*, June 9, 1901.) A patient, 52 years old, reported at the clinic with a history of two years' hoarseness, and showed on examination at the junction of the anterior and middle thirds of the right vocal cord a tumor with a broad base, grayish yellow, and consisting of two pea-sized lobules. During phonation the growth was pressed by the vocal cords with the result of lengthening it in its long axis. There was a peculiar transparency visible resembling that of a cyst. The mass was removed, found to be of soft consistence,

and on microscopic examination was shown to be a pure myxoma. It consisted of connective tissue cells, widely separated from each other, and provided with numerous long prolongations, containing in its interspaces mucin. The question arises whether this was a primary myxoma or a myxomatous degeneration of a fibroma. *Goodale.*

A Case of Scleroma of the Larynx Healed by Intubation.

NAVRATIL. (*Pester Medizinische-Chirurgische Presse*, May 9, 1901.) A patient, 14 years old, appeared with a history of two years' hoarseness associated with difficulty in breathing. The examination showed a thickening below the left vocal cord which continued to extend in all directions, so that the patient was intubated with the result of restoring free breathing. For a year he appeared perfectly well, at the end of which time stenosis returned and he showed a narrowing of the glottis from grayish-red, irregular thickenings below the vocal cords. Intubation was performed with tubes of continually increasing size, until the patient was able to breath freely and speak in a loud voice.

In the discussion, Nemaï does not regard the case as one of scleroma, since scleroma is of a malignant nature and without tendency to retrogression. He regards it rather as a chorditis vocalis inferior hypertrophica. *Goodale.*

The Diagnosis of Primary Laryngeal Tuberculosis.

P. S. DONNELLAN, Philadelphia. (*American Medicine*, Oct. 12, 1901.) Primary laryngeal tuberculosis is not so rare as is generally supposed, and is quite explainable from a pathologic standpoint. A review of the literature is given. The symptoms are dryness and uneasiness about the throat; difficulty in swallowing; impairment of the voice, from slight hoarseness to complete aphonia; a strident brassy cough; and expectoration of mucus, which later becomes mucopurulent. Hemorrhages may occur from erosion of the laryngeal capillaries. The larynx shows the appearance of an acute laryngitis of varying intensity. Small superficial ulcers may be seen on the vocal cords and arytenoids; and later, the typical tuberculous laryngeal infiltrations and ulcerations are to be found. The disease may be mistaken for any of the varieties of chronic laryngitis, and must be distinguished from laryngeal neoplasms, as carcinoma and papilloma. While

the bacteriologic examination is of the highest importance, the absence of tubercle bacilli from the sputum is not to be taken as conclusive evidence of the absence of the disease.

Richards.

Post Typhoidal Ulceration, and Abductor Paresis of the Larynx.—Tracheotomy.—Recovery.

D. J. GIBB WISHART, Toronto, Canada. (*Philadelphia Medical Journal*, Sept. 7, 1901.) Symptoms began one month after the onset of the disease. Both cords were swollen, while the left was ulcerated. Abduction became deficient, followed by complete abductor paresis, with difficult breathing, partial cyanosis and unconsciousness, and a tracheotomy had to be done. The tracheotomy tube was worn five weeks. Recovery was complete. Slight hoarseness remained.

Richards.

Chronic Laryngitis in Children.

J. L. GOODALE. (*Annals of Gynecology and Pediatrics*, May, 1901.) This affection occurs as one of the results of nasal obstruction, from vocal strain, and from faulty co-ordination of the intrinsic laryngeal muscles. For this latter condition electricity, massage and vocal exercises produce the best results.

Richards.

Traumatic Dislocation of the Left Arytenoid Cartilage.

HENRY L. WAGNER, San Francisco. (*The Laryngoscope*, August, 1901.) This extremely rare case is reported occurring in the instance of a man, seventy-two years old, who was struck upon the throat. Unconsciousness followed. Subsequently intense pain was manifest with difficulty in respiration and inability to speak.

The following day laryngoscopic examination showed intense tumefaction in the region of the false and true vocal cords and arytenoid cartilages. Slight crepitation was felt, although no abnormal mobility of any part of the larynx could be perceived. A few days later, under appropriate external applications of cold and an internal alkaline laryngeal spray, the swollen condition of the larynx materially subsided. The left arytenoid cartilage was found to be dislocated and thrown to the front of its normal position, and fixed between the respiration and phonation line of the vocal cord. Under massage treatment the dyspnea and aphonia gradually disappeared.

It is remarkable in this case that no fracture of the

laryngeal cartilages took place, for at the patient's advanced age these cartilages are more or less ossified, and that the trauma resulted only in the dislocation of the left arytenoid cartilage from its cricoid joint.

Seymour Oppenheimer.

Complete Fixation of the Vocal Cords Due to Syphilis, Resembling Bilateral Abductor Paralysis.

S. SCHRAGA. (*Monatssch. f. Ohrenheil*, Vol. XXXV.) A syphilitic subject suddenly developed dyspnea. Examination revealed redness of the epiglottis and ventricular bands, the vocal cords being immovable in the median position. Upon the body there were several specific ulcerations. Tracheotomy was refused. By forced mercurial treatment and intubation with Schrötter's tubes, the patient completely recovered. The writer believes that a specific infiltration around the joints and not abductor paralysis caused the fixation of the cords. *Levy.*

The Function of the Crico-Thyroid Muscles.

A. JURASZ. (*Arch. für Laryng.* Band XII.) The question as to whether the crico-thyroid muscles causes the thyroid to descend or the cricoid to ascend is still a matter of controversy. The writer inclines to the latter view and advances several important arguments to support this view. In the first place, the muscle diminishes in size in a direction toward its insertion upon the cricoid. Upon morphologic considerations we may conclude from analogy based upon other muscles that its insertion upon the thyroid is the fixed point. Besides, it is anatomically impossible for the cricoid to be fixed so that the inferior portion of the muscle will remain fixed, for the reason that necessary muscles are not at hand. Further, if the other view were correct, the vocal cords on phonation would be horizontal to a chink opening anteriorly. This would be physiologically not correct, in fact direct observation shows the opposite to be true. In addition by placing the fingers upon the ligamentum conoideum, the elevation of the cricoid can distinctly be felt. *Levy.*

A Striking Condition of the Nerves of the Nasal Mucosa in Reflex Neurosis.

BENNO LEVY. (*Arch. für Laryngol.* Band XXII.) Reflex neurosis in connection with nasal affections is an undoubted occurrence; in only a minority of cases does such

a neurosis develop. The writer treated a woman who complained of frequent chilly sensations, feeling of anxiety, dyspnea, sleeplessness, pain in all the joints, and severe abdominal pains, especially at the menstrual period. Besides a retroflexed uterus he found a polyp in the middle meatus and a swelling of the inferior turbinate, which resulted in recovery after removal. Microscopic examination showed besides normal structures an unusual richness of nerve fibres which reached almost to the surface. A similar condition was found in another case in which headache resulted from a swelling of the inferior turbinated.

Lery.

What Function Has The Uvula in Singing.

BOTTERMUND (*Arch. für Laryn.*, Band XII.) examined a colorature singer who complained of paresthesia of the pharynx. He refused to remove the uvula as requested, but it was done by another. After this there was difficulty in the expression of guttural consonants and in tone placings especially trilling and colorature. He considers the removal of the uvula, without doubt, responsible for the speech defect. The preservation of the uvula may be particularly important for artistic vocalization, especially in the nasal formation of the vowels. A shortening of the uvula may occasionally be practiced, but a complete removal, never.

Lery.

Tubercular Tumor of the Larynx.

G. TRAUTMANN (*Archiv. für Laryngologie*, Band 12.) states that tuberculosis of the larynx appears in four forms, infiltration, ulceration, miliary tuberculosis and tumor. The tumor form generally appears as an early variety of tuberculosis, at times as if it was a case of primary tuberculosis. In one case the lungs were found unaffected on autopsy. The writer found in one case a tumor of the size of a filbert upon the posterior end of the vocal cord which he took to be a fibroma. Microscopic examination gave the same diagnosis, and typical tuberculosis was found only after a second examination. In a similar case, which was however more progressed, Gussenbauer suggested extirpation of the larynx on the diagnosis of carcinoma, and he arrived at proper diagnosis only after observing the progress of the lung affection. Characteristic of this form of tuberculosis is the absolute ab-

sence of ulceration. Infection may take place from without or through the blood or lymph stream. In order to establish the diagnosis it is necessary to make a careful examination of numerous microscopic sections. *Levy.*

V.—MISCELLANEOUS.

Intratracheal Injections in Bronchial and Pulmonary Affections.

WILLIS S. ANDERSON, Detroit, Mich. (*Medical News*, Sept. 28, 1901.) These injections are of use in many bronchial and pulmonary affections not amenable to ordinary treatment. They are of no value in acute bronchitis, but are very useful in subacute and chronic bronchitis, and are of positive benefit in bronchiectasis and in these cases of pulmonary tuberculosis due to secondary infection. Injection quickly relieves the distressing symptoms of asthma, and in no way interferes with other lines of treatment. No harm follows its use, though severe coughing is sometimes induced for a short time.

The technic is as follows: A Muir tracheal syringe with a glass barrel holding four drams is used. Under good light the cannula of the syringe is introduced while the patient slowly inhales, and the fluid to the extent of one dram is injected. Cocain is not usually necessary. The co-operation of the patient is absolutely essential. Olive oil is the best vehicle for the injections, and the most satisfactory solutions are menthol, 2 to 4 per cent. combined with camphor, 2 to 4 per cent., or with liquid guaiacol, 1 to 2 per cent., or with both. Camphor-menthol combined with chloretone, 2 to 4 per cent., has also proved of service. The author formerly used creosote, but has substituted liquid guaiacol therefor. After the solution has been prepared it should be filtered through cotton or fine cheese-cloth and sterilized by placing the bottle in a water-bath and boiling the water for 40 minutes. *Richards.*

On the use of Menthol-Iodol in Rhino-Laryngologic Practice.

JORRIS. (*Klinisch-therapeutische Wochenschrift*, April 14, 1901.) The writer concludes: 1, that the odor of iodol

in this preparation is completely replaced by that of menthol; 2, that the menthol-iodol possesses antiseptic qualities, equal to, or even superior to that of iodol; 3, that it exhibits a peculiar and refreshing anesthetic action; 4, on account of its fine crystalline form it is an ideal preparation for insufflations; 5, that it produces no disturbance of digestion.

Goodale.

Some Conditions Other than Aortic Aneurysm which Determine the Occurrence of the Tracheal Tug.

HENRY SEWALL, Denver, Colo. (*American Journal of the Medical Sciences*, Aug., 1901.) 430 cases were examined and the tug obtained according to the procedure proposed by Oliver. "The patient should be seated with the head well thrown back. This position elevates the larynx and puts the trachea on the stretch, so that downward impacts are less likely to be lost. The observer, standing behind the patient, places the tips of either his forefingers or middle fingers under the rim of the subject's cricoid cartilage and presses gently upward. Sometimes only the thyroid cartilage can be satisfactorily grasped. Under these conditions the whole larynx is felt to make an inspiratory excursion downward with a return upward in expiration, and a more or less evident tug may be sometimes felt, usually, but not always, confined to the phase of inspiration. The downward, respiratory movement of the larynx becomes very marked with deep inspiration, and when the chest is fixed in this phase of respiration the larynx tends to become rigidly fixed in its lowest position. The downward movement of the larynx is said to be due to the inspiratory contraction of the sternothyroid and sternohyoid muscles."

The conclusions reached are as follows: First, "that a tracheal tug quite palpable in character is, in the majority of cases, associated with and dependent upon adhesions of the left pleura. Diminished extensibility of the lung tends to produce the same phenomenon, and the tug is most pronounced when the conditions are combined." Second, "that in the normal individual, descent of the heart with inspiratory movement of the diaphragm may so press the aortic arch upon the left bronchus as to impart to the trachea the aortic pulse, recognizable at the larynx as a palpable tug of greater or less distinctness." *Richards.*

Primary Sarcoma of the Thyroid Gland.

AUGUST JEROME LARTIGAU, New York. (*American Journal of the Medical Sciences*, Aug., 1901.) Primary sarcoma of the thyroid gland is rare, but probably of more common occurrence than the statistics would seem to show. It is commonly associated with goitre and occurs oftener in late than in early life, its greatest age frequently being between 40 and 60. The tumor most frequently originates in the right lobe of the thyroid body. Its clinical course is usually relatively acute, and involvement of the trachea or larynx by pressure or new growth is common. Round and spindle or mixed cell sarcomata are most common; but angiosarcomata are not rare. The mortality after operation has been remarkably high.

The case reported by the author was one of angiosarcoma occurring in a well nourished woman of 45 years. The tumor was smooth, apparently cystic in character, and had replaced the right lobe of the thyroid. It was removed, and for one week the condition of the patient remained satisfactory. Dyspnea then occurred, the growth recurred, pressure upon the trachea became very evident and she died of asphyxia. There were no metastases beyond the local seat of the primary lesion.

Richards.

A Case of Tic Douloureux, with Successful Removal of the Gasserian Ganglion.

HENRY T. WILLIAMS, Rochester, N. Y. (*Philadelphia Medical Journal*, Aug. 10, 1901.) Patient was a woman who had suffered from severe tic douloureux for 8 years. She was several times operated on; first by division of the nerves of the right side with relief for four months; then the superior maxillary ganglion was removed with no relief; then the inferior maxillary bone was trephined without relief.

The author made an incision after the Krause-Hartly method, in the temporal region above the zygoma, and after partly turning down the skin and muscle chiseled through the skull with a small grooved chisel, following line of incision outward with a strong bone elevator. The section of bone was removed and the nerves were divided. No relief followed, and the patient was again operated on three days later. This time the layer of dura covering

the Gasserian ganglion and superior and inferior maxillary division of the trifacial nerve was divided and turned aside, exposing the nerves and ganglia; about one-quarter of an inch of each nerve was resected, and the distal ends of the nerves were pushed through their foramina with a probe; the proximal ends of the nerves, with the Gasserian ganglion were scraped out with a small curette, and a probe was passed into the Gasserian fissure and the fissure well scraped with it. Primary union took place and the patient left the hospital in 18 days, well. Several months later there had been no recurrence of pain. *Richards.*

**General Anesthesia in Operation upon the Nose and Throat
—Nitrous Oxid, Chloroform and Ether.**

F. E. HOPKINS, Springfield, Mass. (*Boston Medical and Surgical Journal*, Sept. 12, 1901.) Chloroform is dangerous, since it requires a skilled anesthetist, and even then is not absolutely safe. Ether has many drawbacks but is safe even when administered by a comparatively unskilled person. Nitrous oxid gas has many advantages, but hardly gives time enough for a thorough operation, owing to the short duration of the anesthesia. The ideal anesthetic would seem to be nitrous oxid gas followed by ether, since there is no stage of excitement, but little ether is used, and the anesthesia is complete.

[The reviewer has recently seen a number of operations on the nose, naso-pharynx and pharynx performed under nitrous oxid anesthesia at the Central London Throat and Nose Hospital, and was charmed with the results. The nitrous oxid gas was given by a skilled administrator; the anesthesia was rapid and complete while the cyanosis was only moderate. Sufficient time seemed to be allowed for a rapid operator to remove both tonsils, or adenoids, or even a good-sized spur. The amount of bleeding seemed much less than with ether anesthesia, and recovery was rapid. As a rule it is not used for children under 4 years of age.] *Richards.*

SEVENTH ANNUAL MEETING OF THE AMERICAN
LARYNGOLOGICAL, RHINOLOGICAL AND
OTOLOGICAL SOCIETY.

(Concluded from last issue.)

The second case was that of a girl of nine years, whom he had operated upon about seven years ago. The granulation tissue had been found already invaded by tubercle bacilli. The child made an uneventful recovery, and was still living. The third case had been operated upon twice for mastoiditis, the second operation having been about six months ago. The wound was now slowly healing, and he was still inclined to think there was still a tubercular focus or nidus in the ear. Examination of the sputum and of the lungs had been negative as regards any other tuberculous process. These cases were possibly examples of primary tuberculosis of the ear.

DR. J. F. MCKERNON, of New York City, said that three years and a half ago he had had a case under observation for a short time before the operation. After the operation the wound had failed to heal, and after about four months examination of the granulation tissue had shown the presence of numerous tubercle bacilli. The lungs had been carefully examined by two excellent diagnosticians but no tuberculosis discovered. He had had the case under observation ever since the operation. The wound of the ear would heal at intervals and then break down again. No evidence of general tuberculosis had yet been discovered, and he was inclined to look upon this as a case of primary tuberculosis of the middle ear. Packing the ear with gauze soaked in the valerianate of guaiacol seemed to be the only thing that provoked even temporary healing.

**The Schwartz-Stacke Operation for Chronic Suppurative
Otitis Media; Re-Formation of the Tympanic Membrane;
Secondary Myringectomy; Improved Hearing.**

DR. M. D. LEDERMAN, of New York City, read a paper with this title. The case reported was one of very extensive destruction of bone, the result of an acute process, although the middle ear process had become almost qui-

escent. The presence of streptococci or of pneumococci certainly would indicate an operation. Another case cited was that of Mrs. X—, who, for eight years, had suffered from headaches on the right side, and for a long time there had been a discharge from the ear on that side. A probe revealed caries of the ossicles and attic, and there was some tenderness on deep pressure over the antrum. She had two distinct chills a week before examination. On October 31st the Schwartz operation was done. The antrum was deeply situated, the lateral sinus was quite superficial, and the dura dipped very low, so making the operation quite difficult. No pus was found in the antrum, but some granulation tissue was removed with a spoon, the necrosed malleus and incus was removed. An incision was made through the membranous canal and a drainage tube inserted. On the sixth day union had occurred. The wound healed over in six weeks under enzymol dressings. Last January tenderness over the mastoid returned, and examination showed a secondary membrane. The latter was removed, and a small portion of granulation tissue was curetted from the upper part of the attic. The patient suffered from a severe attack of vertigo, which lasted for two days, and was associated at first with very marked projectile vomiting. A good result followed.

A Case of Sinus Disease.

DR. EDWARD B. DENCH, of New York City, presented a patient upon whom he had operated about six weeks ago for acute mastoiditis. The internal table had been found carious, and a clot had been discovered in the sinus. There had been an unusual elevation of temperature after the operation, and on the fourth day he had ligated the internal jugular vein and had found a softened clot. Since then recovery had been uninterrupted.

Symposium on Diseases of the Faucial Tonsil and Peritonsillar Tissue.—Anatomy and Physiology

DR. NORVAL H. PIERCE, of Chicago, took up this topic. He said that lymphoid tissue was plentifully distributed throughout the body. It was abundant in the larynx, especially about the ventricles. It is absent in the trachea. This tissue was widely distributed throughout the animal kingdom, being present in the mammalia with the exception of the rodents. At birth, the tonsil consisted of a sac,

but it could rarely be recognized as the tonsil at this time. The supports, and consequently, the shape of the tonsil varied in individual cases. The supra tonsillar space was triangular, its apex projecting up between the palatal muscles. In this space so-called tonsillar abscesses occur. This space should always be explored in examining the pharynx. The speaker said that little was known of the function of the tonsil, though recent experiments seemed to indicate that it has the same office as the ductless glands in the body.

Acute Suppuration.

DR. MAX A. GOLDSTEIN, of St. Louis, took up this subject. He said that it was generally admitted that opportunities for infection and suppuration in the tonsil were unusually favorable, yet acute suppuration, limited to the tonsil and going on to abscess formation, was an unusually rare condition. The suppurative process was usually consummated in the peritonsillar tissue—indeed, there might be intense abscess formations in this tissue while the tonsil remained small and healthy. He was inclined to the opinion that the glandular and lymphatic element of the tonsil played an important rôle in the transmission of pyogenic infection to the peritonsillar tissue. Early surgical interference seemed to him rational, and often imperative to prevent sequelae and the possibility of a burrowing abscess. Early incision before the presence of pus could be recognized was not necessarily an abortive measure, yet it was an exceedingly valuable procedure. He followed incisions with the bistoury by the introduction of blunt forceps, and then spread open their blades widely. This secured free drainage where pus formation and abscess occurred, and at the same time left only a small pharyngeal opening. He believed that early incision, even before pus could be recognized, was a valuable prophylactic. Edema often followed, and might be relieved by incision or by the topical use of adrenalin. The patient's comfort might be materially increased by syringing into the pharynx a mixture containing two or three grains of each of menthol and camphor and three or four drops of oil of sandalwood to the ounce of benzoinol.

Peritonsillar Suppuration.

DR. HENRY J. HARTZ, of Detroit, read this paper. He

said that the infection often spreads from chronic latent tonsillar abscess through the lymphatics to the mediastinum, resulting in pleurisy and pyemia. Latent tonsillar abscess could only be demonstrated by section of the tonsil and by microscopic study of the micro-organisms. In this way it might be traced through the lymphatics to the mediastinum. Caries of the teeth, nasal operations and abrasions of the pharyngeal membrane might give rise to infection. Peritonsillar disease occurred most commonly in youths and adults, or at a time when retrograde changes in the lymphoid tissue were taking place. The peritonsillar abscesses which he had seen had all shown a marked development of the so-called "capsule" of the tonsil. Obstruction to the natural channels of drainage was one of the chief exciting causes of peritonsillar inflammation, and articular rheumatism following tonsillitis was probably the result of the deposition in the joints of germs entering the system from the tonsil. About one-fourth of his cases had suffered from pain indefinitely called rheumatism. When obstruction to drainage was removed, no recurrences take place, even in those who have had articular rheumatism. The obstruction to the drainage might be so firm as to force the infection into the pharyngeal tissue. In the recurrent cases it was sometimes advised to seek for the fistula by pressing with a probe upon the anterior pillar, when a drop of pus would make its appearance at the sight of the fistula. The recurring abscesses were, for the most part, situated within the pharyngomaxillary space. Sometimes curettement of the focus followed by the application of trichloroacetic acid is sufficient. Excision of the tonsil was frequently the best treatment. Local scarification and the local application of heat would assist in dissipating the congestion in the early stages of peritonsillar inflammation. Gargling was often painful. Considerable comfort was afforded by a spray of 4 per cent. solution of cocain.

Acute Lacunar Inflammation.

Dr. M. R. WARD, of Pittsburg, discussed this subject. He said that the essential lesion was a catarrhal inflammation of the lacunae or crypts. Its infectious nature was no longer in doubt, but its specific organism had not yet been isolated. Intranasal and pharyngeal operations were

frequently associated with acute lacunar inflammation, no matter how carefully these operations had been done. The open wound might serve as an entrance for bacteria, or changes in the secretion of the parts, resulting from the irritation of packing or plugs, might be responsible for the trouble, or lastly, this form of inflammation might be the result of the action of cocain and similar substances upon the system. The theory of the microbic origin of rheumatism was to-day pretty generally conceded to be correct. Acute lacunar tonsillitis occurred most frequently in early life and in adolescence. Any portion of the lymphoid ring might be affected. Abundant clinical evidence could be adduced to show that acute lacunar inflammation was moderately contagious, and the severity of the resulting inflammation depends upon the nature of the micro-organism introduced. The treatment of this form of inflammation should be both local and constitutional. He could not personally claim to be able to abort this process. The local application of guaiacol was claimed by some to have this power, but he had never been able to successfully abort an acute lacunar inflammation by this or any other remedy. All that could be done by treatment was to modify its severity, as it was self-limited, lasting only a few days. Small pieces of cracked ice or ice water were decidedly useful in the early stages. The patient should be freely purged with calomel or with effervescent phosphate of sodium. The value of the time-honored tincture of the chlorid of iron could not be overestimated, and it should be given through-out the acute stage. Codein, salol and phenacetin would relieve the headache and other pains. The tonsils should be removed in the interval of the attacks.

Mycosis.

DR. ARTHUR G. ROOT, of Albany, N. Y., discussed this topic briefly. He said that pharyngomycosis was a rather uncommon affection. *Leptothrix* and the bacillus follicularis were the organisms usually found in the deposits. The process was a slow one, and presented only objective signs. Mycosis was often mistaken for a follicular tonsillitis. Small pearly-white tufts would be found dotted over the surface, and on attempting to remove them it would be noted that they were embedded deeply in the tissues. If the disease were of long standing these tufts would occas-

ionally be found run together. He was not one of those who look upon mycosis as a pretubercular condition. Aside from building up the general health, the essential thing in the treatment was to destroy the fungous growth by the application of various astringents and antiseptics. It was still better to remove the tissue by the curette, forceps and tonsillotome.

Tuberculosis.

DR. CORNELIUS G. COAKLEY, of New York City, was the author of this paper. He said that the frequency of tuberculosis had been underestimated. One observer had found in a series of cases 48 per cent. of tonsils tubercular. According to his own clinical experience, this percentage seemed much too high. The pillars of the fauces and the posterior pharyngeal wall were often involved. The tubercular ulcers were usually irregular in outline, and showed a tendency to coalesce. The following remedies had given him the greatest satisfaction in these cases. The parts should be cleansed with a spray of sodium chloride and bicarbonate of sodium, then sprayed with 10 per cent. solution of cocain, and finally treated with 25 per cent. solution of lactic acid. This solution should be repeated at intervals of three days, the strength of the lactic acid solution being gradually increased. He had also found formalin a useful disinfectant in such cases. It had been demonstrated that tubercle bacilli may pass through unbroken epithelium of the tonsil. Some cases of primary tuberculosis of the tonsil present nothing in their appearance different from that of an ordinary hypertrophy of the tonsil.

Glandular Complications.

DR. TALBOT R. CHAMBERS, of Jersey City, N. J., read this paper. During the past year, gland involvement, he said, had not been frequently noticed. Guaiac in frequently repeated doses had caused a diminution in the size of the glands; enucleation should be preferred to incision and curettage. The rubbing of acutely or chronically inflamed glands was very reprehensible. He had met with an unusual number of cases of pachydermatis laryngis, and the removal of this condition had been made easy by the use of cocain and adrenalin.

DR. JONATHAN WRIGHT, of Brooklyn, N. Y., opened the

general discussion. He said that the structure of the normal faucial tonsil was practically the same as that of lymph glands. Long ago Buxley had made the statement that the tonsil was a diverticulum of the pharynx around which the lymph glands had been thrown. The theory of phagocytosis had been greatly modified of late until now it was believed that it was the juice of the lymph cells which served to protect the body from invasion. The protective influence of lymphoid tissue had been thrown around the diverticula found at various mucous places in the removal. This was probably because in these clefts bacteria would find easy lodgment. In the nose there was not the same reason for the development of such lymphoid structures. But there was a special necessity for such protective influence in the pharynx, which receives the drainage from the nasal cavities, the ingestion of food by the mouth, and the upheaval of mucous particles from the bronchi and trachea. Before dust particles or bacteria could reach the terminal branches of the bronchial tree, they must be deposited upon the mucosa, and be cast upward by the ciliated cells of the pharynx, and it was just here that the lymphoid tissue of Waldeyer's ring was found.

DR. FRED. C. COBB, of Boston, Mass., said that it seemed to him that most cases of acute peritonsillar abscess could be traced to a prior acute tonsillitis, though in many instances of abscess on first coming under observation, there was no sign of the precedent tonsillitis. The tendency now was to make the incision between the pillars rather than in the classical position in the anterior pillar. If the cut were at the right angle to the direction of the pus, the latter might or might not be reached. By cutting in the direction of the pillar, one cuts in the direction in which the pus is going, and it is more easily reached. Looking over 20 cases, he found three that had been opened to the supratonsillar fossa had closed again. In his hands a much larger percentage would close, if the incision were made in the old-so-called point of election. He had seen a peritonsillar abscess develop in the lower part of the tonsil after the upper part had been removed. In lancing peritonsillar abscesses two kinds of cases were to be considered, viz., (1) Those in which pus is for the most part

between the anterior pillar and the tonsil, and (2) those in which the pus is in the anterior pillar. If the pus were in the anterior pillar, the pillar would be slanted forward and the posterior pillar backward, and vice versa; hence, one could decide whether to lance through the anterior or posterior pillar, or through the supratonsillar fossa. The speaker said that he had taken measurements of the depth of the average peritonsillar abscess cavity from the edge of the anterior pillar, and had found it to be 1-1 8 inches. If therefore, the knife penetrated three-fourths of an inch the operator might feel safe.

DR. LEWIS A. COFFIN, of New York City, indorsed what Dr. Hartz had said regarding the etiology of peritonsillar suppuration. If the drainage of the nose were defective very slight causes would be sufficient to provoke inflammation. He was still sufficiently old-fashioned to make use of the old iron mixture, believing it to be very much better in a very large number of cases than the use of the salicylates or of guaiacol. He was inclined to think the good effect of guaiacol was after all chiefly due to its astringency. Astringent applications cause the ejection of the occluding plugs, and this leads to a prompt cure.

DR. T. PASSMORE BERENS, of New York City, presented in connection with this discussion a specimen of papilloma of the tonsil itself.

DR. PRICE BROWN, of Toronto, said that Lennox Brown in his recently published book declared that peritonsillitis was in the great majority of instance the result of true tonsillar inflammation. He thinks that peritonsillar abscesses nearly always occur as an extension from the tonsil, and second cases of tonsillar abscess occurring independently of rheumatism, showing additional enlargement of the tonsil after each attack and indicating in the latter that the inflammation was tonsillar and not peritonsillar.

DR. M. D. LEDERMAN reported a case which had presented symptoms like those of the grip, and the appearance of the throat had been that of a pseudomembranous inflammation. Under the microscope there were colonies of staphylococci. The pain had been very severe. Within two days after the subsidence of the membranous affection of the follicles all of the joints of the body had become

involved, but relief had been quickly afforded by anti-rheumatic treatment. He had seen a case in which the tonsil had been incised seven times for a peritonsillitis. The knife had to be carried directly backward for an inch and a half before pus could be reached.

DR. W. FREUDENTHAL, of New York City, said that he agreed with Dr. Ward that it was impossible to prevent acute lacunar inflammation by the use of any drug, but it could be done by attention to the climatic factors which play an important role in the etiology of this affection. To prevent acute lacunar tonsillitis he did not advise bundling up children in clothes, but hardening them to changes of temperature. Mucus dropping down into the nasopharynx and drying acts as a foreign body and causes an irritation, which predisposes to lacunar inflammation. The obvious indication was to treat the nasopharynx.

DR. M. A. GOLDSTEIN, of St. Louis, suggested the possibility of there being but two avenues of infection. There were two forms of peritonsillar infection having separate clinical characteristics. The peritonsillar form was confined practically to the anterior pillar; the other was a supratonsillar abscess. He raised the question if it were not possible for a form of peritonsillar abscess which is so closely associated with the tonsil, and so adjacent to the anterior pillar, to be a direct tonsillar infection, and the other an infection carried by the lymph channels. He believed it was possible to differentiate these two forms. He agreed with Dr. Freudenthal as to the preventive measures indicated for acute tonsillitis. He had attempted in the last few years to thoroughly curette the lacunæ free from all detritus, and then apply to the lacunæ pure carbolic acid, pure guaiacol or trichloroacetic acid. In most of the cases in which this had been done the duration of the tonsillar affection had been materially reduced.

DR. T. H. HALSTED, of Syracuse, N. Y., said that he had just seen an interesting case of tonsillar inflammation. A university student had been sick with a fever like that of typhoid. About the ninth day spots had appeared on the body, and a spot or two of ulceration on the tonsil. The throat symptoms had then rapidly become the more prominent. Another physician insisted that the case was syphilitic. When the speaker had seen the case two or three

days later, the uvula was enormously edematous and the left tonsil ulcerated. The temperature ranged between 100°F. in the morning to 102 F. at night. The case seemed to him to be one of typhoid fever complicated with a tonsillar inflammation, but he had never seen this complication before.

Multiple Cerebellar Abscess; Sigmoid Sinus Thrombosis.

DR. J. E. SHEPPARD, of Brooklyn, N. Y., presented a cerebellum and dura showing a multiple cerebellar abscess and a sinus thrombosis. The specimen had been taken from a man, thirty-seven years of age, who had been admitted to the Brooklyn Hospital on April 19, 1901. About four months previously, he had been hit in the frontal region with a pitch-fork. One month later he had begun to have pain in the right ear, and shortly afterward a discharge of pus from this ear. For about one month he had had headache, especially on the right side, and, according to the patient, he had had a swelling back of the ear. Examination showed hearing to be impaired; there was a moderate increase in the number of white blood cells; the temperature under the tongue was between 97 and 98° F., and in the rectum 90°F.; the pulse ranged from 58 to 72. At the operation the mastoid cells were found obliterated. On probing the sinus there was an escape of about half a drachm of pus containing streptococci. There had not been a single symptom of sinus disease. Three days later a trocar and canula had been plunged into the cerebellum and had withdrawn two or three drachms of pus containing streptococci. This had resulted in temporary improvement. Two days afterward the patient died suddenly of respiratory failure. In the anterior part of the right half of the cerebellum were two abscesses, the anterior one having been opened. The right lateral sinus was entirely and the longitudinal sinus partly obliterated by contained organized blood clot.

A Year's Experience in the Treatment of Stricture of the Eustachian Tube by Means of the Electric Bougie.

DR. THOMAS J. HARRIS, of New York City, read this paper, based on an experience of the past year with 33 cases. In the majority of cases a silver catheter wound with thin rubber had been used, and a current of not more than 3 ma. had generally been used. The current was

not increased as soon as there was any bubbling in the ear, and the negative application of the current was not continued for more than five minutes. Inflation was not practiced afterward. Of the 33 cases, 24 had tinnitus of a chronic nature, and of this number, one was cured, 13 were improved. Only 13 complained of difficulty in hearing, and of these, 12 were improved. In only two cases out of 25 in which strictures were present, was the tinnitus cured permanently. The strictures were successfully passed in all but one case. Eight out of 17 cases showed material improvement in hearing. He was convinced that the electrical current, even when properly used, was capable of causing adhesions of the tube, and, according to his experience, the effect of the current in relaxing the stricture was not permanent. In spite of aseptic precautions supuration of the ear had followed in three instances. One case was mentioned in which electrolysis had caused sudden and severe pain, followed within a few days by supuration of the ear, and extension into the mastoid. Evidently in this case there was a short tube. This case served to show that the method of electrolysis was not free from danger. The author concluded that this treatment should be used after, and not before, other methods, and that it was questionable if these strictures were really fibrous.

DR. GEORGE L. RICHARDS, of Fall River, Mass., said that it was important not to use infiltration immediately after the use of the bougie. He had done this once, and had been unfortunate enough to blow some air into the tissues around the Eustachian tube. As to the patient's sensations he could speak from personal experience. He had had the Eustachian tube catheterized before the days of cocain, and had also submitted to Eustachian electrolysis in the hands of Dr. J. A. Kenefick. The operation had not been painful, and after three or four minutes there had been a sensation as though something had given way, and as though air had entered the tympanic cavity—a sensation which he had never experienced in the previous catheterizations.

DR. WENDELL C. PHILLIPS, of New York City, said that he had watched Dr. Harris' work in his clinic with great interest. His own experience with the method corres-

ponded exactly with that described in the paper. He believed it was a useful method of treating strictures of the Eustachian tube, but it was not a cure-all, and he did not believe the electricity had any permanent effect on the stricture as applied in these cases. He was inclined to agree with a recent statement of Dr. Dench, that the results were mostly what one would expect to achieve by the use of any bougie, with or without electricity. There was, however, one slight advantage, *i. e.*, it was an easy mode of passing through the stricture, because of the temporary relaxation caused by the electric current. The speaker said that some years ago he had suffered from very severe tinnitus in the right ear. At this time Dr. Dench had passed in an ordinary bougie with entire and permanent relief of the tinnitus. Tinnitus was certainly very much relieved by electrolysis of the Eustachian tube. As to of the case mastoid involvement reported in the paper, he believed the explanation of this complication was to be found in the supposition that they had not waited long enough after the attack of grip for the bacilli to disappear. There was some danger of these bougies breaking, as shown by this accident having occurred even in experienced hands.

DR. N. L. WILSON said that his limited experience confirmed most of what had been said by Dr. Phillips. However, he had had one case in which he had been unable to introduce the ordinary bougie and yet the electro-bougie had passed readily. Having passed the stricture with this instrument he was accustomed to use an ordinary bougie to complete the work. He also had experienced the introduction of the electro-bougie, and had found it quite painful.

DR. G. B. MCAULIFFE, of New York City, stated that the action was not truly electrolytic but a tonic one on the muscular and vascular portions of the tube, that the difference in the amount of bubbling depended on the amount of moisture present in the tube; that it was not practicable to melt a stricture without substituting another scar surface. He asked if the electrolytic action had ever been done under sight, on the surface of the body.

DR. W. P. BRANDEGEE, of New York City, said that this method had proved to be thoroughly practical. In cases

at the New York Eye and Ear Infirmary he had noticed a distinct and permanent result in nearly every case. The cases had gone around to various clinics complaining of tinnitus and deafness, and had not received benefit until subjected to this treatment. They had not stopped to theorize, but they did not know that the tinnitus had been greatly diminished and the hearing markedly increased. The tactile sensation conveyed to the operator in the passage of the electro-bougie should be sufficient to warn him when he has reached the tympanum. The stricture was often not met with until one reached the mouth of the tympanic cavity. In the last two or three years they had used the bougie in over 150 cases, and in not a single one had there been suppuration. The instruments had all been carefully boiled. He was not aware that he had ever made a false passage, and thought there was much more danger of such an occurrence with the ordinary bougie because of the force used.

DR. C. DUNBAR ROY, of Atlanta, Ga., said that for the past thirteen months he had been using electrolysis of the Eustachian tube, and had been impressed with the part played by the personal equation. In the first few months he had had rather poor results; in the last four months the results had been far better. He believed the Eustachian bougie was most useful in the selected cases of tinnitus and deafness. He had employed it entirely in private practice, and had obtained far better results than by any other method. He used the chlorid of silver battery and five milliamperes of current. He never used anything but a solid silver catheter that he could bend to fit the naso-pharynx and make enter the tube. With a hard rubber catheter he never felt sure of the direction and location of the instrument. In some cases he had obtained excellent results with a whalebone bougie, but when this failed he resorted to the electro-bougie. The amount of pain attendant upon the treatment varied considerable in different individuals. He had never observed any infection or any irritation of the drum. In his ten cases the results had been most satisfactory.

DR. D. S. DOUGHERTY, of New York City, spoke by invitation. He said that some years ago he had been deeply interested in the relief of urethral stricture by electrolysis.

By this time he had collated about 200 cases. The permanent cures amounted to 12 per cent., and in these he believed the good result was not from the electrolysis but from the bougie, just as from an ordinary bougie. In cases in which the stricture was temporarily impassable he always succeeded in passing the electro-bougie.

DR. J. A. KENEFICK, of New York City, said that the condition of the tube could be determined in most cases by the use of the otoscope under inflation. When the obstruction was situated near the tympanic orifice one was apt to be misled by the sound striking this obstruction instead of the drum. He would like to ask Dr. Harris whether, in the case in which an adhesion was afterward found at the mouth of the tube, the catheter used was metallic. If the tip of the metallic catheter were not properly insulated, some action was likely to take place at the entrance of the tube. At the tympanic cavity considerable obstruction might be met with until the current was turned on. In an experience of nearly three years with over 100 cases he had never had suppuration or any other untoward results. The sensation of freedom imparted to the bougie indicated to him when the bougie had entered the tympanic cavity. Again, the facial expression of the patient changes the moment the bougie enters this cavity, this region being much more sensitive than the tube. In some cases it was necessary to employ the treatment two or three times before overcoming the obstruction.

DR. ARTHUR B. DUEL, of New York City, said that a paper like the one under discussion must always prove useful because of the careful and faithful analysis of the cases presented. He had himself never advocated this mode of treatment of a cure-all. In every case of catarrhal otitis media at some stage the Eustachian tube would become obstructed, and there would result tinnitus, deafness, and perhaps also vertigo. The one thing to be accomplished in such cases was the ventilation of the tympanum by the opening of the Eustachian tube. Although Dr. Harris's one year's experience had led him to speak of the method in a somewhat detrimental way, it should be remembered that other speakers had given a much more favorable report on the method, founded upon an experience of from three to five years. A permanent opening up

of the Eustachian tube could be accomplished much more quickly by this method than by any other. It was not a mechanical effect, as was the case with ordinary bougies.

DR. EDWARD B. DENCH, of New York City, said that if the electrolysis of the Eustachian tube had accomplished nothing more than elicit this discussion, it had certainly done a good deal for otology. He agreed pretty well with Dr. Harris in what he had said. He believed the method was perfectly safe if practiced according to the principles of aseptic surgery. He had used the ordinary bougie in grip cases, and had had suppuration. The choice of the instrument must vary with the individual operator. When he could not get the ordinary instrument through, he would use the electrolytic method; until then he perhaps would not try it. He had had these obstructions recur after the use of the simple bougie and had seen cases recur after the prolonged use of the electro-bougie. A very slight difference in the curve given to the bougie would explain the varying difficulty experienced on different days in passing the instrument. Air might get through, and yet the instrument would not take the abrupt turn. Again, on certain days the mucous membrane of the tube would be more swollen than on others, and that too in certain portions of the tube. Mention was made of a case of partial occlusion of the external auditory meatus, in which dilatation by electrolysis had been tried after division with a knife. Although the conditions seemed favorable, and the operation could be actually witnessed, electrolysis had accomplished nothing.

DR. N. H. PIERCE, of Chicago, called attention to the fact, that the mucous membrane lining the Eustachian tube is not smooth but is in folds, and that there may also be more or less obstruction from adenoid tissue. Strictures occur most frequently at the isthmus. In the future work in this field it was most important to make a careful diagnosis. In stapin ankylosis, or in various conditions of the middle ear, electrolysis of the Eustachian tube could not do good.

DR. T. P. BERENS said that in unskillful hands, electrolysis of the Eustachian tube was a dangerous and formidable procedure. The cases most benefited by it had been those strictures in a small part of the tube only.

DR. HARRIS, in closing the discussion, said that he believed the metal bougie was used in the case in which adhesion was found at the mouth of the tube. In every case a celluloid bougie had been passed before trying electrolysis. In the hands of competent persons, thoroughly acquainted with the technique, the method was probably free from danger, but under other circumstances it certainly was not free from risk.

**Simple Operations on the Inferior Turbinate in Place of
Cauterization.**

DR. JOHN F. WOODWARD, of Norfolk, Va., was the author of this paper. He used the cautery in the first stages of hypertrophy only. The complete removal of the inferior turbinate was seldom necessary. Our object should be to secure the greatest amount of air space with the least destruction of tissue. He makes use of scissors having short cutting blades, one being serrated. He also has a snare which can be used with one hand. The parts are prepared for the operation by antiseptic washes and the use of a solution of suprarenal extract.

Chronic Nasopharyngeal Bursitis.

DR. C. DUNBAR ROY, of Atlanta, Ga., read this paper. He expressed the conviction that adenoids were present in all children, and that they are not the result of climate but are greatly influenced in their growth by climate. The anatomy of the region was reviewed, and the statement made that anatomists were not agreed as to the existence of the pharyngeal tonsil. Those who dispute the existence of this bursa, he felt sure did so because of anatomic and not clinical study. He personally believed there were certain cases of nasopharyngeal catarrh which were dependent upon a pathologic state of this bursa. He believed this bursa was only rarely present. The treatment that had succeeded best in his hands was the application of a solution of nitrate of silver, sixty grains to the ounce, applied directly to the surface affected, and then spraying with hot melted vaseline and orthoform.

DR. C. G. COAKLEY, of New York City, said that he had seen cases similar to those reported in the paper, and he had always regarded them as the result of a peculiar arrangement of the lymphoid tissue in the nasopharynx. The formation of deep recesses was undoubted, and some

of them extend down even to the periosteum of the bone. In the cases under discussion he thought there was a deep recess passing under a band of connective tissue. He had curetted such a case with temporary benefit only. The relapse had been found to be caused by a retention of secretion, and on the thorough removal of the secretion from the blind pouch, the parts had healed permanently. The curette passes over the pouch without removing the material.

Diseases of Stenson's Duct, and the Treatment.

DR. CARL E. MUNGER, of Waterbury, Conn., read this paper. Acute and primary inflammation of this duct, he said, might follow exposure to cold and retention of secretion. Stenosis might result from ulceration or impaction of calculi and other foreign bodies. Fistula might form and open either externally or internally. Simple chemical tests would show whether or not the fluid was really saliva. Injuries to the duct, whether the result of operation or other traumatism, should be attended to at once to prevent the formation of fistula. Stricture could only be overcome with difficulty by dilatation. If near the buccal orifice, dilatation with forceps would probably be satisfactory, but if the obstruction were near the gland an operation would be demanded. Where the parotid gland was the seat of an abscess or broken down tissue, incision was imperative, but it must be remembered that as this results in a parotid fistula the operation was only the beginning of treatment.

Tympanic Vertigo Due to Obstruction of the Eustachian Tube.

DR. WILLIAM P. BRANDEGEE, of New York City, read this paper. He said that vertigo could be divided into four varieties, viz.: (1) Vertigo incident to diseases of the heart; (2) vertigo complicating disease of the stomach and intestinal tract; (3) vertigo associated with diseases of the eye, and (4) vertigo dependent upon diseases of the ear. Vertigo in connection with ear disease is almost always associated with tinnitus. When there was only moderate deafness, vertigo was not usually complained of. The lower tone limit was nearly always raised. Vertigo due to aural disorder was either subjective nor objective, and the vertigo varied from slight giddiness to an inability to stand up or walk. The vertigo was usually referred to the side on which the lesion exists. The first effort should be

to strike at the root of the disorder by restoring the lumen of the Eustachian tube. The most rapid and effective method of accomplishing this, in his opinion, was by electrolysis. By the aid of the current from the negative pole the bougie could be readily passed, whereas with the ordinary bougie undue force would be required. The method caused a minimum amount of pain and produced the minimum amount of trauma, and allowed of the utmost delicacy of manipulation. The smallest bougie with a tip 1 mm. in diameter was preferred for the first treatment, and a current of from 25 to 40 volts and from two to five milliamperes should be used. Electrolysis and not the cauterization was desired. The negative pole should be attached to the bougie and the positive electrode held in the hand. Before passing the bougie the mouth of the Eustachian tube should be thoroughly anesthetized with cocain. To be effective the tip of the bougie should pass within the tympanic cavity, and inflation should not be done for forty-eight hours.

Toxic Rhinitis.

DR. CHARLES P. GRAYSON, of Philadelphia, was the author of this paper. He expressed the belief that nine-tenths of the cases of rhinitis were the result not of exposure to cold, as often stated, but rather to a toxemia—in other words, that rarely, if ever, could it be said that a person whose metabolic processes are normal can “take cold.” He was inclined to believe that wet dinners rather than wet feet were responsible for many cases of acute rhinitis. The people who are the greatest sufferers from periodical rhinitis are those who are indulgent at the table or who will not take that amount of exercise which might make amends for errors at the table. The local treatment of such attacks must be but palliative, and is of small moment. For these reasons he strongly condemned the now very prevalent custom of prescribing “rhinitis” tablets, composed of opium, belladonna and aconite. It was far better to prescribe horseback or other exercises followed by a cool bath and a rub down than the usual coddling treatment for colds.

Immunization in Hay Fever.—A Report of Two Years' Experience.

DR. H. HOLBROOK CURTIS, of New York City, read this

paper, which was a supplementary report on what he had presented on this subject before the last meeting of the American Medical Association. He had begun his experiments in this field by administering hypodermically a sterilized infusion of roses. After two weeks of this treatment the lady had been able to stand the effect of the odor of roses. He had then treated this neurotic individual by similar preparations of violets and lilies, and with equally good result. He had next noted that other flowers than these could be included in a bouquet without causing the distress formerly experienced. He had then determined to apply this therapeutic principle to hay fever, and as a result, Fraser & Co., apothecaries of New York City, had placed on the market in August, 1900, a preparation of the fluid extract of ragweed with aromatics, which was sold under the name of "Liquor Ambrosio." With each bottle a printed blank had been sent out with a request for the co-operation of those using the remedy in systematically studying it. At the end of four weeks after sending it out reports had been received of 18 complete recoveries, of 4 cases showing considerable improvement, and of twelve cases in which the result has been negative. About 3,000 bottle had been sent out. Many letters were read to show what had been the results, both favorable and otherwise. After studying these reports, and considering his own experience with about 100 cases he had come to the conclusion that in those cases of hay fever due entirely to the ragweed, immunization could be secured in about 60 per cent. of the cases, but that in cases of mixed infection with a preponderance of asthmatic symptoms, a nasal spray of suprarenal extract or of adrenalin should be employed.

DR. H. L. WAGNER said that of late the studies of immunization had become most interesting. Having heard of Dr. Curtis's experiments he had undertaken the analysis of various extracts of flowers with the object of ascertaining what effect they might have on the serum of the blood. It seemed that the so-called glycosides of the vegetable kingdom form certain chemical combinations with the albuminoid of the blood. He did not refer to the serum albumin or the serum globulin. He fully agreed with Dr. Grayson that cases of toxic rhinitis often result

from the formation of certain acid products of fermentation. Just as some individuals were peculiarly sensitive to such toxins in the blood, and exhibited this idiosyncrasy by the development of rhinitis, so persons might be peculiarly sensitive to the glycosides of flowers. He intended to continue his study of this subject, and hoped to report upon it in a year or two. He had had patients develop symptoms of hay fever after riding behind a horse, whether or not the animal had been well groomed. The peculiar smell of the horse is due to hippuric acid, and hence it had occurred to him to try injections of horse urine. Instead of this, however, he had decided for various reasons to employ pure hippuric acid. He had used a solution of hippuric acid of the strength of 3 to 3.5 per cent. One or two cubic centimetres were injected every third or fourth day. One of the individuals thus experimented on after eight or ten weeks of the treatment was able to drive without developing the symptoms formerly observed. The speaker said it had occurred to him that this result might possibly have been dependent upon suggestion, yet it was not inconceivable that the glycosides of flowers might combine with the side chains of substances in the blood. He thought the subject was worthy of thoughtful and extended study.

DR. E. L. VANSANT, of Philadelphia, said that this subject of immunization was certainly most fascinating. The use of cow pox against smallpox and of antitoxin against diphtheria were notable examples of achievements in this field. Hay fever was certainly more or less of a neurosis, and he was inclined to think that the idea of being made immune to a disease from which one had been suffering from year to year would have a profound effect on the nervous system, and this would account for some of the beneficial results reported. The nearest approach to the action of a remedy similar to that recommended by Dr. Curtis would be that of quinin in malaria fever. That had a certain power to make one immune to malarial infection, but there the infection was a specific one, and the action of quinin appeared to be a specific one upon the malarial plasmodium in the blood. He was of the opinion that numerous examinations of the blood in cases of hay fever might bring out valuable information.

DR. PRICE BROWN said that Dr. Curtis deserved the thanks of the members for having so persistently followed out one line of investigation. One point in that investigation, however, had been left out, even so far as the title of the paper itself—"Hay Fever." Apparently he had taken no cognizance of the effect of hay. Dr. Brown said that he had known men to develop attacks of hay fever after having been engaged in throwing pure timothy hay. Mention was made of a man who had sneezed more than one hundred times simply because he had thrown out one load of hay.

DR. F. H. KOYLE, of Hornellsville, N. Y., said that he had had one case of a woman who had never suffered from symptoms of hay fever except when riding behind a horse.

DR. L. F. PAGE said that the reported results from treatment with the tincture of ragweed are certainly encouraging. He had several patients who had been unpleasantly affected by driving behind a horse and he had come to the conclusion that this was due to the hair of the animal having become saturated with the pollen of various plants rather than from any peculiar emanation from the animal. For several years he had secured good results in the treatment of hay fever by restoring proper drainage, and as nearly as possible normal conditions of the mucous membrane, together with proper attention to the elimination action of the skin and bowels. Various abnormalities of the nose by causing pressure irritation in persons predisposed to hay fever was often responsible for the occurrence of this disorder. He knew of several cases that had been entirely relieved years after all of the abnormalities of the nasal cavities had been removed; the disturbed nerve centres had had time to regain normal resistance.

DR. N. L. WILSON said that from the letters read by Dr. Curtis he had been persuaded to give the remedy another trial. He had used it in eight cases last year, and the only results noted had been the production of nausea and an increase of the discomfort of the patient. He had been disposed to discard this treatment, not only because of these clinical results, but because one of his patients always had an attack after driving behind a horse, and another patient developed hay fever after riding a bicycle

on a dusty road. Surely Dr. Curtis could not be expected to add the fluid extract of dust to his preparation.

DR. C. F. MCGAHAN said that his summer practice for many years had been in the home of hay fever. Formerly those who came there were immune to the disease; in later years they had had light attacks, usually after the prevailing wind had been from the north-west. Several years ago when assistant to Dr. Geddings, five thousand letters had been sent out to the laity with the idea of securing information about hay fever, but the result was of but little value. In his locality these hay fever patients do not drive except after a rain, for they always develop symptoms of hay fever. He also knew of a gentleman who had a stable about as clean as one's kitchen, and whose horses were beautifully groomed, and yet he also had hay fever after driving behind the horse in the hay fever season. It used to be said that the ragweed does not grow in the mountains, and hence persons are exempt from hay fever there, but this was not true because the ragweed had been found in these regions. Even the planting of corn had been deprecated by some hay fever sufferers lest it might ruin this region as a haven for sufferers from this disease.

DR. J. A. STUCKY, of Lexington, Ky., said that he had tried Dr. Curtis's preparation, and had forwarded to him the results. In three cases the patients thought they were benefited, but they remarked that the ragweed was less virulent last season. In eight cases he had been unable to see any appreciable result, while he had obtained considerable relief from the use of a solution of suprarenal extract and chloretone, one part with seven parts of an alkaline solution, either Dobell's or Seiler's solution.

DR. T. J. HARRIS said that only that very day he had been talking with a patient who always had a rose cold on May 20, which disappeared on July 3d. He had given this woman no treatment directed to the nose, but had endeavored to correct the high acidity of the urine and improve the condition of her stomach. Under such treatment at one time she had gone the whole year without any rose cold. The latter was five days overdue, so that it was possible that the treatment mentioned would again secure for her immunity this year.

DR. E. E. HOLT said that a classmate of his had been

unable to ride behind a horse at any time in the year, although he had tried various methods of grooming and cleaning the horse.

DR. CURTIS, in closing, said that in a previous communication he had cited a case in which a man had been unable to live in London since twelve years of age. He could not pass a horse in the street without having a dreadful coryza. Many specialists in London had experimented with him. It had been found that he could ride behind a horse that had been vaselined, and would not develop any symptoms until after about one hour. Persons who are sensitive to the emanations from the horse develop the symptoms when riding in a sleigh, thus eliminating the question of dust. Some persons are sensitive to emanations from elephants, cats and mice. A rose cold occurs even when there are no roses about, and is the result of an erectile tumefaction. In the later stages a true edema supervened. He believed the most important thing in the treatment of hay fever was the elimination of uric acid, and that this was proved by the effects of low diet. He knew several opera singers whose vocal cords were so sensitive to the emanations that if exposed to such emanations in a room they would be unable to sing. Enough encouragement had been found in the reports received by Fraser & Co. to lead them to manufacture 50,000 bottles for this season's consumption. He was of the opinion that the fluid extract was the more efficient preparation.

Management of Acute Otitis Media.

DR. F. L. JACK, of Boston, Mass., read this paper. He said that the object of treatment in the first stage was to keep open the tube. In children, the Politzer bag should be used; in adults, the Eustachian catheter. If the inflation were done too energetically the inflammation would be increased. The pain was best relieved by dry heat; poultices could not be too strongly condemned. Of instillations, oily mixtures were the least objectionable. In the second stage there were a collection of fluid in the middle ear and a bulging of the drum membrane. A free incision of the drum was of the greatest importance, and not only gave prompt relief but tended to prevent mastoid complications. Many cases of catarrhal deafness were made worse by a neglect to free the middle ear of fluid. The

opening should be made at the point of greatest bulging, and the incision should be free. He thought children suffered more from giving a general anesthetic than from incision without it; in adults, ether, chloroform and even nitrous oxid might be used. The ear should be inflated at intervals until hearing was restored.

Early Treatment of Mastoiditis.

DR. CHARLES W. RICHARDSON, of Washington, D. C., was the author of this paper. The first and most important indication for treatment, he said, was the early and free incision of the tympanic membrane. This incision not only relieves the pain but limits inflammatory activity. The second important indication was rest, yet, as a rule, little attention was given to it. The patient should be kept in bed until the temperature had remained normal for two or three days, and all tenderness had disappeared. During this period the diet should be fluid, and the bowels should be kept open. The third indication was the removal of the discharge. Frequent gentle irrigation with water at a temperature of 110°F. seemed to him to give the greatest comfort. The fourth important indication was to prevent infection of the mastoid or arrest it when it had taken place. This was best done by the continued and persistent application of ice over the mastoid. He preferred the ice bag to the coil as it was more manageable and the degree of temperature was more evenly maintained. Where there was more or less tenderness of the mastoid tip there could be no question about the urgent need for the application of cold externally. Many cases do not come under observation until spontaneous perforation has taken place, and there are fever and considerable tenderness. The perforation should be enlarged and ice applied continuously and persistently as long as there was evidence of improvement. On the other hand, should no improvement be observed for a period of forty-eight hours after the application of ice, radical intervention was essential. The development of edema over the mastoid, or the sinking of the posterior superior wall of the auditory canal indicated the presence of purulent accumulation, and demanded radical intervention at once. Too much importance should not be given to the apparent improvement in the less essential symptoms, for, by so doing one

was apt to be misled. The greatest weight should be attached to the lessening of tenderness and the improvement in the character of the discharge.

DR. EDWARD B. DENCH said that he was in almost perfect accord with what had been said by the readers of these papers. He was very glad that Dr. Jack approved of inflation in the very early stages. He was certain that in a number of cases he had seen an acute inflammatory process within the tympanum aborted by the *gentle* use of the Eustachian catheter to restore the balance, as it were, of the drum membrane. In this congestive stage the proper use of the catheter accomplishes very much what a supporting bandage does in an inflamed limb, *i. e.*, it restores the circulation to the normal condition. If the infection were not too virulent, the disease might not go beyond the stage of congestion. He preferred the catheter to the Politzer bag except in very young children where it was practically impossible to use the catheter. He had had no experience with adrenalin, but he knew that the application of a solution of nitrate of silver, of a strength varying from ten to forty grains to the ounce, is efficacious in many of these cases. Dry heat was also of great value; the best way to spoil a good ear was to poultice it. With reference to the use of oils, he was inclined to think that oils do harm by furnishing an excellent nidus for the development of the aspergillus. In the external canal the absence of light, with the presence of moisture and heat, added to the other favorable conditions for the development of such an organism. The result of the instillation of oils was the development of moulds and streptococci. Subsequently it might become necessary to incise the membrane, and under such circumstances it would be found exceedingly difficult to sterilize the canal. As to the advisability of incising the drum membrane when there was no bulging, the speaker said that he believed that sometimes the incision into the drum should be made even when there was no effused fluid. This was particularly true of the cases starting in with very acute pain. His experience with wick drains had not been favorable. His plan was to use irrigation immediately after the incision. Theoretically sterile water was all right, but practically it seemed to him better to use a solution which was mildly

antiseptic. Where numerous streptococci were present it seemed especially desirable to diminish the virulence of the germs in the canal by such use of an antiseptic. He preferred bichlorid solution, 1 to 3,000 or 5,000. He believed in early incision, rest in bed and the use of cold as a routine treatment, but by this he meant that the case should be under a surgeon's personal observation from its inception. If there were any evidence of mastoid involvement he was strongly of the opinion that in most cases it was a little dangerous to make use of cold, because of the tendency of such an application to mask the symptoms. He could not agree with Dr. Richardson that the cold should be left on as long as improvement was observed, for, he believed if cold did not abort an inflammatory process within forty-eight hours it would not act as an abortive measure, though it might relieve the symptoms. If the coil were left on longer the inflammatory process might be arrested in the superficial cells, and yet be progressing in the deeper cells, and such treatment might then result in intracranial involvement. Two cases had made him hesitate to use cold. One was a man who had come into the hospital with a pneumonia, and for this reason the mastoid operation had been postponed and cold used. He had been brought to the hospital about six weeks later in coma and with choked disk. He had been promptly operated upon, and a brain abscess evacuated, and the man had recovered. In the case of a young girl, cold had been left on for three or four days, and all of the symptoms disappeared. The boy had returned to the hospital about two months later with an abscess in the posterior fossa, and a very extensive destruction of the mastoid process. Infection had taken place through the external surface of the skull and an abscess had developed between the dura and the bone as a result of that absorption. He believed that the otologist in doubtful cases was just as much warranted in doing an exploratory operation on the mastoid as the general surgeon was justified in doing an exploratory operation in other regions. Such a procedure secures drainage posteriorly, diminishes the risk of serious impairment of hearing, saves the patient from intracranial complications, and shorten the period of convalescence.

DR. J. F. MCKERNON, of New York City, said that two

years ago he had read a paper before this society in which he had advocated cold in certain stages of acute mastoiditis, yet the impression had gone forth that he had advised it in all stages. When a case came under observation with beginning tenderness of the mastoid process he advocated free incision of the drum membrane, absolute rest in bed, fluid diet, free purgation and the application of the Leiter coil over the mastoid for twenty-four hours. If after this time there was marked tenderness the coil should be removed and the case watched for twenty-four or forty-eight hours. If, on the other hand, the tenderness had diminished the coil should be left off and the case watched. There was no use, of course, in applying the ice coil if pus were already present. In acute mastoiditis with mastoid tenderness and a condition of congestion only, the application of cold would, in the large majority of cases, abort the process. Where the predominant infection was streptococcal, he was very skeptical as to any measure proving abortive. The discharge from the external meatus should be examined bacteriologically in all of these cases. He thought the time would come when otologists would practice the exploratory mastoid operation advocated by Dr. Dench. In an uncomplicated mastoiditis it was certainly a perfectly safe operation, and he was glad that this procedure had been so earnestly advocated.

DR. T. P. BERENS said that the treatment of inflammation of the middle ear should be along the lines of free drainage and cleanliness. Irrigation should be with solutions as hot as can be borne. The Eustachian tube should be opened, and this procedure could be most easily accomplished by the use of adrenalin through the catheter. He believed that heat accomplished much in the early stages of this affection. Confinement to bed was an important factor in cutting short the attack. The nose and pharynx should be kept clean, and internal medication should be resorted to. In the later stages, where there was considerable formation of pus, he found peroxid of hydrogen useful, but it should be added to the hot irrigation and dry cleansing. The effects of extreme cold and extreme heat were practically the same, and as ice masks the symptoms where heat does not, he preferred heat. Many acute cases

in which one expects to find pus in the mastoid antrum yield to the treatment outlined, together with the use of hot poultices. This treatment should be persisted in for forty-eight hours, if need be, so long as the patient is comparatively comfortable and there are no urgent symptoms. He had recently had a case completely recover, the mastoid symptoms disappearing after five days of careful nursing. In the removal of the jugular vein one often finds a thin broad sterno-mastoid muscle. By prolonging the incision and splitting this muscle the vein could be more easily laid bare. It was customary to split the lateral sinus and pack it with gauze; his own practice was to split the sinus the whole length of the diseased area and a little beyond, and then enucleate the split edges, leaving practically an open wound which could be easily dressed, and which could not possibly contain any pus.

DR. T. R. CHAMBERS exhibited the ear douche which he employs in connection with water having a temperature of 125°F. He believes that many cases of impending mastoiditis have been cured by this treatment which would never have been cured by any of the methods of treatment already described. He said that he had read a paper on this subject about one year ago, and as a result had received some inquiries regarding this douche. The instrument is made by the Davidson Rubber Company, of Boston. It may be sterilized, taken apart, will fit any ear, and is indestructible. With it water at a temperature of 125°F. may be used without burning the fingers holding the instrument. It was his rule in every case to make a culture from the discharge as it exudes from the middle ear.

DR. E. E. HOLT said that in the discussion of this subject many years ago, Dr. Agnew had laid stress upon the importance of having the patient recline at an angle of 45°. This was a point of some importance, as many patients are comfortable in that position but suffer a good deal if lying flat on the back. He had long ago learned from experience that many cases of earache could be relieved by introducing into the auditory canal a piece of cotton moistened with spirits of camphor, and having in centre some red pepper. He felt sure that what had been

said in previous meetings of specialists about the use of cold in inflammation of the middle ear had had done much harm by encouraging general practitioners to use it indiscriminately, and without regard to the special stage in which it was alone appropriate. It was often difficult to determine whether a mastoiditis was superficial or deep.

DR. PRICE BROWN cited a case in which acute pain in the middle ear had developed in a lady after exposure to cold. He had applied dry heat, and within thirty-six hours she had developed mastoid tenderness. Her temperature at that time had been 101°F. He had then made a very free incision into the drum, evacuating seropurulent material. At the same time he had applied a fly blister. He believed in dry treatment, and hence he had not resorted to irrigation, fearing that it would carry infectious matter into the deeper parts. The following day the temperature had been 99°, the discharge had lasted about five days, and the further recovery had been uneventful.

DR. SARGENT F. SNOW said he was glad to hear Dr. Richardson use the expression, "the persistent application of cold as long as it seems to be doing good," for an experience had shown him that a little latitude could be given to the forty-eight hour rule, particularly if the case were holding its own. The operation for opening the mastoid was undoubtedly one which was frequently necessary, and of great benefit, but nature, in her efforts to ward off extension of inflammation throws out a protecting wall. Now, if one opens and clears out a mastoid, which is the seat of only slight inflammation and softening, he is very liable to break down this protecting wall, favoring infection of adjacent parts. He believed one should secure free drainage of the mastoid. If on opening the mastoid, only slight softening were found, it seemed to him sufficient to maintain free drainage, and not disturb the walls. In many cases free incision of the ear drum and of the posterior superior wall was sufficient to give all the drainage required. Sometimes the posterior superior would be found bulging again after the first incision. If this occurred, it should be again incised.

DR. WENDELL C. PHILLIPS said that he understood Dr. Jack and Dr. Dench to advocate the use of the catheter in

acute catarrh of the middle ear. The use of the catheter or inflation of any form in acute inflammatory processes of the middle ear was not unattended by danger. He would hesitate to do this in any cases in which there was an infective process going on in the nose or in the nasopharynx, because of the danger of carrying some of the infectious material into the Eustachian tube. He referred especially to grip cases. Whether the inflammation was catarrhal or suppurative in these cases, the less one had to do with the Eustachian orifice the better for the patient. He could imagine some cases of catarrhal inflammation where the treatment mentioned by these gentlemen would be safe. He had almost come to the conclusion that in acute inflammation of the mastoid cells, whether or not the ice coil were used, or poultices were used, little influence was exerted upon the process going on in the mastoid cells, and he had almost come to the conclusion that once a mastoiditis always a mastoiditis, and that but little could be done in the way of prevention. We should strictly define the varieties of mastoid disease. There was one type which no treatment seemed to him to reach effectively namely, the grip cases in which streptococci are present. This was the result of his personal experience. On the other hand, if there was mastoid inflammation without these germs—in other words, a congestion or a catarrhal inflammation—the case might be influenced by treatment. Two symptoms and one condition seemed to him to mark the positiveness of the case, *i.e.*, prolonged tenderness over the antrum, bulging of the attic and the presence of streptococci in the pus. The pus should be examined microscopically in every case. Theoretically, the ice coil was better than hot applications. Poultices had been both condemned and praised in this discussion. In actual practice it seemed to him that the hot poultice certainly had a very beneficial effect, though admittedly bad in theory. In any case, neither cold nor hot applications should be continued for any length of time. In the past six months in a rather large service he had taken off the ice coil at the end of twenty-four hours, and had not re-applied it for fear that the longer application would mask the symptoms. Some physicians make it a routine practice to attempt to abort a mastoid case by the use of the

ice coil, yet he would insist that there were many cases which were undoubtedly operative from the time they first came under observation. He could not see how a blister could be of any benefit whatever in such cases.

DR. J. F. MCCAW said that his experience coincided entirely with that of Dr. Dench and Dr. Phillips. He believed that cold in these cases is entirely out of place. Mention was made of a case seen by him some time ago, where consent to operation had been withheld for the time, and the patient had been allowed up and around. He had finally come to the speaker's office with very little tenderness but a free purulent discharge from the middle ear. Immediate interference had been advised, and a typical mastoid operation had been done the next morning. The mastoid cells were found converted into a carious mass, the wall of the sigmoid was completely carious and covered with pus, yet this patient had gone around the previous afternoon attending to his occupation of civil engineer. The case emphasized the treacherous nature of these cases.

DR. H. L. WAGNER said that in almost all cases there was a mixed infection. When there was at first a pneumococcus infection there would surely be a mixed infection in the course of a few days. If there was a pure pneumococcus infection, the prognosis was good; if the infection were mixed, and especially if streptococci were present, one should be guarded in the prognosis. This form of infection should be regarded as very serious, though he did not think that all of them really needed operation. We should not be satisfied with making examination of pus once only, but these examinations should be repeated from time to time until satisfied with the improvement. Clinical intelligence should, however, be superior to the results of these important examinations.

DR. R. C. MYLES thought that progress was being made as to the importance of understanding the physics and chemistry of inflammation of the middle ear. Wherever free drainage occurred, an operation was rarely required. When pressure caused sloughing of bony as well as soft tissues, and led to necrosis, an operation would probably be required. He did not think that quite enough attention was paid to the details of securing this drainage. For in-

stance, the exact method of making the incision to relieve the tension in the mastoid cells was not generally stated, though Dr. Dench had made an effort in this direction. The membrane appears on inspection rather peculiar when an incision is required, and one was apt to be misled as to the exact location and extent of the incision. In some of his cases he had gone so far as to excise a portion of the drum membrane; in others, he had made a triangular incision. He had never felt that he had made too free an incision—indeed, the more extensive the incision the better had been the after results, other things being equal.

DR. RICHARDSON, in closing, said that he had supposed in his paper that the case was under observation from the very beginning. One derived a certain amount of intuition in connection with any work in which one has a large experience. Some cases at once indicate to the physician that an operation is required, and, of course, such cases should not be treated by the application of ice. He had had this spring a gentleman with double otitis media and streptococcus infection. The left ear went on to resolution under the application of ice. Five days afterward, and after having applied cold for forty-eight hours, he had done a mastoid operation on the right ear. About the same time he had seen a case in which there had been very little tenderness, and a body temperature of 99° F. There were numerous streptococci in the discharge. The next day he had operated upon both mastoids, and had found extensive disease with an epidural abscess on one side. These cases were narrated to emphasize the necessity for the use of individual judgment. He had not said anything about ice masking the symptoms, only that one must be extremely careful about observing the symptoms while using the ice. He had seen as bad cases of pneumococcal infection as of streptococcal infection.

Lithemic Pharyngitis.

DR. J. A. STUCKY, of Lexington, Ky., read this paper. He said that uric acid excites inflammatory reaction in mucous membrane. The excessive elimination of uric acid and the inability of the organs to comply with this demand caused it to be deposited in other organs. The local manifestation of the diathesis might not be confined to the larynx, but might make its appearance in the nasal and

gastro-intestinal tract. The attack causes primarily no lesion. It might be ushered in suddenly by a sensation of fullness in the throat, and increased by swallowing. There was a constant desire to swallow, and the throat had a rigid feeling, and was hot and dry. There was only slight elevation of the temperature. The redness and swelling were more marked behind the posterior pillar of the fauces, the other portions of the throat being very slightly congested. The uvula was often rigid, swollen and edematous. In most cases there was a pricking and itching as if a foreign body were present. It was sometimes an immediate precursor of articular rheumatism. Overindulgence in eating and drinking was often as much the determining cause as exposure to cold. Local treatment was only of value because of its psychologic effect. Marked relief was afforded by an initial cleansing out of the nose and throat by a hot alkaline solution. The drugs indicated were those which increase the alkalinity of the blood. The salicylates combined with minute doses of pilocarpin should be given, and repeated until a free action of the skin had been secured. Daily exercise with restricted diet would give the most favorable and lasting results.

DR. VANSANT said that a few years ago he had drawn attention to the effect of indulgence in strawberries in causing pharyngitis. Quite a number of people could not indulge in this fruit without suffering from pharyngitis and more or less inflammation of the tonsils.

The Mechanical Treatment of Nasal Synechia With Demonstration of an Appliance.

DR. F. H. KOYLE, of Hornellsville, N. Y., presented a paper with this title. After briefly referring to the instrumental treatment of existing synechia he exhibited a splint and the material from which it is made, viz., the modelling composition used by dentists in taking impressions for plates. A block of this is immersed in hot water until soft, and is then removed to a previously warmed wet surface, where it is kneaded or rolled out to the desired thinness. While still soft a strip is cut off and shaped into a splint, the sharp edges are smoothed down with the fingers. It is absolutely aseptic, light, non-absorbable, and superior in every way to rubber tissue,

spunk, ivory or celluloid. He had been led to use this material, others having been found unsatisfactory, because of the impossibility of using anything other than an easily moulded concave-convex splint in certain septum cases where operation was refused. Some of his patients had worn this splint material for three weeks without annoyance or unpleasant consequences.

DR. PRICE BROWN said that rubber was just as aseptic as the composition presented. It was true it had an odor, but it could be left in any length of time, and being compressible it retained its position better. He had now a case that had worn a rubber splint without discomfort for four weeks, and he would leave it in position for five weeks more. The material was readily manipulated, using only a file and knife. He had used the rubber for three years, and had been greatly pleased with it.

DR. KOYLE said that he often introduced this composition into the nose while warm and soft. The peculiar advantage of the material was that it could be moulded after having been placed in position.

Report of an Interesting Case of Aneurysm of the Internal Carotid Artery.

DR. WALTER B. JOHNSON, of Patterson, N. J., made this report. The patient was an Italian boy of five years, first seen in consultation on March 15, 1900. Ten days previously the child had an inflammation of the throat and a swelling in the region of the left tonsil, associated with the usual symptoms of peritonsillar inflammation of the throat and a swelling in the region of the left tonsil, associated with the usual symptoms of peritonsil inflammation. Possibly traumatism might have been inflicted that afternoon by an Italian midwife attempting to rupture the swelling with her finger. That evening Dr. Banta had been called and found bleeding from the ear. During a subsequent examination the child struggled violently, and there was sudden gush of blood from the left ear. At this time Dr. Johnson had been called in consultation. There was tense swelling below the ear, which seemed to be limited by the fossa of the neck. No pulsation or aneurismal bruit could be detected. There was a dusky red, nonpulsating tumor in the left tonsillar region. A diagnosis of dissecting aneurism had been made. When examined on March 31

the tympanic membrane of the left ear had a large perforation, and rather thick serous fluid escaped from the junction of the auditory canal and tympanum. When next seen the statement was made that during an attack of enteritis and fever the tumor had suddenly increased, and the child had become comatose. Another physician had expressed the opinion that the tonsillar swelling was a malignant growth. The general opinion of a number of surgeons who saw the case was that this swelling was not an aneurism. On June 13 trachetomy had been done by Dr. Johnson, and two exploratory punctures of the tumor had been made, the remaining part of the left tonsil removed. The tumor mass was examined by a pathologist and the opinion expressed that it was not carcinomatous or tubercular. The patient improved after this with the exception of two attacks of bronchitis. On September 7th the child had been almost exsanguinated by a sudden and severe hemorrhage from the nose. Death occurred on September 10th from a second hemorrhage. No autopsy was permitted. Ligation of the carotid had been considered the previous spring, but owing to the general opinion of the consulting surgeons that it was not an aneurism this operation had not been attempted. The intention had been to do this operation if the tumor bled on exploratory puncture, but it had not done so.

Subarachnoid Injection of Cocain as a General Anesthetic for Operations on the Head.

DR. REDMOND W. PAYNE, of San Francisco, was the author of this paper. He believed that Dr. A. W. Morton, of San Francisco, had been the first to demonstrate that a subarachnoid injection of cocain in the lumbar region was capable of producing anesthesia all over the body. To do this it was only necessary to point the needle upward and force the cocain quickly, the rapidity of the injection being the chief point. His own experience with this special form of subarachnoid injection of cocain comprised only ten cases, but he had had an opportunity of seeing most of the 270 cases operated upon by Dr. Morton. The injection was made in the median line between the third and fourth lumbar vertebræ. The skin was first frozen with ethyl chloride. No injection should be made until the operator sees the cerebrospinal fluid. The pa-

tient assumes the straight position before the injection of the cocain. From eighteen to twenty-five minims of a 2 per cent. solution of cocain should be used for operations on the head, and the head and upper part of the body should be elevated in order to favor the diffusion of the cocain solution upward. It was most important to use a freshly made solution of cocain, sterilized *crystallin* cocain being dissolved at the time. Dr. Riley, of San Francisco, had shown that the anesthetic properties of cocain were not in the least affected by sterilizing crystallin cocain by exposure to a temperature of 300° F. for twenty minutes. Cocain so sterilized was put up in glass vials. From eighteen to thirty minutes were necessary to secure satisfactory anesthesia of the head.

DR. OTTO J. STEIN, of Chicago, said that the difficulty of sterilizing cocain had always constituted an important obstacle to its successful use in subarachnoid injections. Dr. Harold N. Moyer had done away with all this difficulty by substituting eucain. This is readily sterilized by boiling, and, so far as he knew, had produced equally good anesthetic effects when used in 4 per cent. solution.

DR. PAYNE replied that eucain had not been found to possess the reliable anesthetic properties of cocain.

Papillomatous Growth of the Soft Palate.

DR. WILLIAM F. DUDLEY, of Brooklyn, N. Y., reported a case of neoplasm resembling papilloma, occurring upon the velum palati of a man aged 71 years. The growths were remarkable for their large size and peculiar odor. The parent mass was $\frac{7}{8}$ of an inch in diameter and had an elevation of $\frac{3}{15}$ of an inch. The surface was coated with soft pulpy detritus and was pearl white in color. This physical aspect is extremely rare, only two similar papillomatous growths having been reported, one by Dr. J. W. Gleitmann and the other by Dr. J. S. Gibb. The tumors were posterior to the margin of a hard rubber dental plate, which had been worn for 20 years, without producing any local inflammation. The patient had smoked 12 cigars daily for 20 years, and it is believed that the papillomatous growths were caused by the irritating smoke current impinging against the soft palate, the hard palate being protected by the dental plate. The patient suffered from severe dysphagia, loss of sleep, and salivation. His gen-

eral health was impaired to a dangerous degree. Sample sections of the neoplasm were pronounced of malignant character by one pathologist, but this diagnosis was questioned by Dr. Jonathan Wright, and with his assistance the tumors were excised by means of a cold wire snare. The wounds healed rapidly and there was no evidence of recurrence. It is 18 months since the operation. The patient has gained 32 lbs. in weight.

Variations in the Technique of Septum Operations.

DR. STEPHEN H. LUTZ, of Brooklyn, N. Y., read the abstract of this paper. He said that he had found it a good plan to use the breaking forceps first instead of cutting first. By this reversal of the method cutting would often not be required unless there were spurs present. He uses splints made of dental plate composition, each splint being molded and made during the operation, to fit the case.

DR. C. W. RICHARDSON commended the author for this practical suggestion.

DR. T. R. CHAMBERS said that he practiced the Gleason operation, and in that no breaking was required.

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